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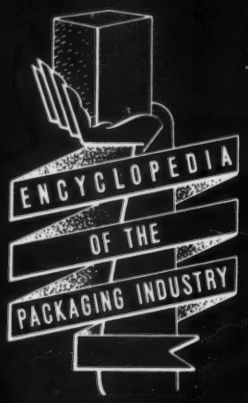
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Arabol Mfg. Co., The
Atlas Powder Co., Zapon Div. and Zapon-Brevolite Div.
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Beetle Products Division of American Cyanamid Co.
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Graeme Harrison Products, Inc.
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Findley Co., The F. G.
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Waterbury Button Co., The

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Brown Paper Goods Co.
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Chippewa Paper Products, Inc.
Continental Bag Specialties Corp.
Cupples-Hesse Envelope & Litho. Co.
Equitable Paper Bag Co., Inc.
Oneida Paper Products, Inc.
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Whiting-Patterson Co., Inc.
Wolf Brothers
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Raymond Bag Company, The
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Angier Corp.
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Bates Valve Bag Co.
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Blake Moffitt & Towns
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Chase Bag Co.
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Hudson Bag Co.
International Paper Products Corp.
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Moser Bag & Paper Co., The
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Paramount Paper Products Co., Inc.
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Union Bag & Paper Corp.
Wolf Bros.
Wurzburg Bros.
Zellerbach Paper Co.

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Valve Bag Co.
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Andrews Corp., P. L.
Bemis Bros. Bag Co.
Bleyer & Co., Alfred
Brown Paper Goods Co.
Celloray Co.
Chippewa Paper Products, Inc.
Continental Bag Specialties Corp.
Crystal Tube Mfg. Co.
Cupples-Hesse Envelope & Litho. Co.
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Dennison Mfg. Co.
Detroit Wax Paper Co.
Dobeckmun Co., The
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Herz Co., Alexander
Humitube Mfg. Co.
Interstate Folding Box Co.
Jaite Co., The
Mason Envelope Co.
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Oneida Paper Products, Inc.
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Print-A-Tube Co.
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Shellmar Products Co.
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United States Envelope Co.
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Whiting Patterson Co., Inc.
Wolf Brothers
Wurzburg Bros.

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Cupples-Hesse Envelope & Litho. Co.
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Dobeckmun Co., The
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Jaite Company, The
Milprint, Inc.
Munson Bag Co., The
Oneida Paper Products, Inc.
Parfait Powder Puff Co., Inc.
Royal & Co., Thomas M.
Shellmar Products Co.
Tower Envelope Co.
Union Bag & Paper Corp.
United States Envelope Co.
Wurzburg Bros.

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du Pont de Nemours & Co., Inc., E. I.
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Thatcher Mfg. Co.

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Diamond Glass Co.
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Federal Glass Co.
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Hamilton Co., J. T. & A.
Hart Glass Mfg. Co.
Hazel-Atlas Glass Co.
Hemingray Glass Co.
Laurens Glass Works
Maryland Glass Corp.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Reed Glass Co., F. E.
Root Glass Co.
Whitall-Tatum Dept. (Armstrong Cork Co.)
Wurzburg Bros.

BOTTLES, COLORED

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Federal Glass Co.
Hazel-Atlas Glass Co.
Maryland Glass Corp.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.

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Armstrong Cork Co.
Brockway Glass Co., Inc.
Carr-Lowrey Glass Co.
Fairmount Glass Works
Food Dispenser Co.
Foster-Forbes Glass Co.
General Glass Corp.
Glenshaw Glass Co.
Hamilton Co., J. T. & A.
Hart Glass Mfg. Co.
Hazel-Atlas Glass Co.
Latchford Glass Co.
Maryland Glass Corp.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Swindell Brothers, Inc.
Wheaton Co., T. C.
Whitall-Tatum Dept. (Armstrong Cork Co.)
Wurzburg Bros.

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Armstrong Cork Co.
Ball Bros. Co.
Brockway Glass Co., Inc.
Carr-Lowrey Glass Co.
Fairmount Glass Works
Federal Glass Co.
Food Dispenser Co.
General Glass Corp.
Glenshaw Glass Co.

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Hart Glass Mfg. Co.
Hazel-Atlas Glass Co.
Maryland Glass Corp.
Olean Glass Co., Inc.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Reed Glass Co., F. E.
Tygart Valley Glass Co.
Wurzburg Bros.

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Buck Glass Company
Gardner-Richardson Co., The (paper)
Hamilton Co., J. T. & A.
Knox Glass Bottle Co.
Lamb Glass Co.
Liberty Glass Co.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Reed Glass Co., F. E.
Thatcher Mfg. Co.
Three Rivers Glass Co.
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American Paper Bottle Co.
Gardner-Richardson Co., The (milk)
Lily Tulip Cup Corp.
Menasha Products Co., The (milk)
Mono Service Co.
National Folding Box Co.
Pulp Products Co., Inc.
Purity Paper Vessels Co.
Reed Container Co., Inc.
Ritchie & Co., W. C.
Sealright Co., Inc.
Sutherland Paper Co.

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Armstrong Cork Co.
Ball Bros. Co.
Brockway Glass Co., Inc.
Carr-Lowrey Glass Co.
Fairmount Glass Works
Federal Glass Co.
Foster-Forbes Glass Co.
Gayner Glass Works
General Glass Corp.
Glenshaw Glass Co.
Hagerty Bros. & Co.
Hamilton Co., J. T. & A.
Hart Glass Mfg. Co.
Hazel-Atlas Glass Co.
Kimble Glass Co.
Knox Glass Bottle Co.
Maryland Glass Corp.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Pennsylvania Glass Products Co.
Pierce Glass Co.
Reed Glass Co., F. E.
Swindell Brothers
Three Rivers Glass Co.
Wheaton Co., T. C.
Whitall-Tatum Dept. (Armstrong Cork Co.)
Wurzburg Bros.

BOTTLES, TRANSPARENT (Cellulose)

Celluloid Corp.
Emeloid Co., Inc.
Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.
Monsanto Chemical Co.

BOX BOARD, ASPHALT LINED

Butterfield-Barry Co., Inc.
Consolidated Paper Co.
Eddy Paper Corp., The
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Kieckhefer Container Co.
La Boiteaux Co., The
Rockford Fibre Container Co.
Sisalkraft Co.

BOX BOARD, CLAY-COATED

American Coating Mills, Inc.
Bradner Smith & Co.
Butterfield-Barry Co.
Container Corp. of America
Dennison Mfg. Co.
Fort Orange Paper Co.
Gair Co., Inc., Robert
Kieckhefer Container Co.
La Boiteaux Co., The
Lowe Paper Co.
Matthias Paper Corp.
Miller Paper Co.
National Folding Box Co.
Paper Affiliates Co., Inc.
United Paperboard Co., Inc.
Wabash Coating Mills

BOX BOARD, FOLDING

Alton Box Board Co.
American Box Board Co.
American Coating Mills, Inc.
Bradner Smith & Co.
Butterfield-Barry Co., Inc.
Consolidated Paper Co.
Container Corp. of America
Continental Color Corp.
Dennison Mfg. Co.
Federal Paper Board Co., Inc.
Fibreboard Products, Inc.
Fort Orange Paper Co.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Kieckhefer Container Co.
La Boiteaux Co., The
Lawless Bros. Paper Mills, Inc.
Lowe Paper Co.
Marathon Paper Mills
Matthias Paper Corp.
Michigan Carton Co.
Middlesex Products Corp.
Miller Paper Co.
National Folding Box Co.
National Metal Edge Box Co.
Ohio Boxboard Co.
Paper Affiliates Co., Inc.
Republic Paper Board Co.
Robertson Paper Box Co., Inc.
Schmidt & Ault Paper Co.
Seal, Inc.
Sutherland Paper Co.
United Paperboard Co., Inc.
Waldorf Paper Products Co.

BOX BOARD, FOLDING (Metallic Coated)

American Coating Mills, Inc.
Artcote Papers, Inc.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Butterfield-Barry Co., Inc.
Dennison Mfg. Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Japan Paper Co.
Keller-Dorian Paper Co., Inc.
La Boiteaux Co., The
Lowe Paper Co.
McLaurin-Jones Co.
Marvellum Co.
Matthias Paper Corp.
Middlesex Products Corp.
Miller Paper Co.
National Folding Box Co.
New England Card & Paper Co., Inc
Paper Affiliates Co., Inc.
Reynolds Metals Co., Inc.
United Mfg. Co.

BOX BOARD, SAFETY, MARKED

Container Corp. of America
La Monte & Son, George

BOX BOARD, SET-UP

Alton Box Board Co.
American Coating Mills, Inc.
Butterfield-Barry Co., Inc.
Consolidated Paper Co.
Container Corp. of America
Continental Paper Co.
Downingtown Paper Box Co.
Fibreboard Products, Inc.
Fort Orange Paper Co.
Gair Co., Inc., Robert
Gardner-Richardson Co.
Kieckhefer Container Co.
La Boiteaux Co., The
Lawless Bros. Paper Mills, Inc
McEwan & Son, R. B.
Menasha Products Co., The
National Folding Box Co.
National Metal Edge Box Co.
Paper Affiliates Co., Inc.
Republic Paper Board Co.
Sutherland Paper Co.
United Paperboard Co.
Waldorf Paper Products Co.

BOX STAYS (White, Gray, Plain and Creased)

Bradner Smith & Co.
Knowlton Co., M. D.
McLaurin-Jones Co.
Matthias Paper Corp.
Nashua Gummed & Coated Paper Co.
National Metal Edge Box Co.
Williams & Co., Inc., Chas. W.

BOX STRAPPING

Acme Steel Company
Gerrard Co., Inc., The
Signode Steel Strapping Co.
Stanley Works

BOX TOP PADDING

American Lace Paper Co.
Kimberly-Clark Corp.
Milwaukee Lace Paper Co.
Pauli Corp., Karl
Traver Corp.
Sweetnam, Inc., Geo. H.
Union Wadding Co.
Williams & Co., Inc., Chas. W.

BOX TOP PICTURES

Blum, Emery

BOX WRAPS

See Lithographers and various Paper headings.

BOXES, CELLULOSE DERIVATIVE

Cambridge Paper Box Co.
Celluloid Corp.
Columbia Products Corp.
du Pont de Nemours & Co., Inc., E. I.
Emeloid Co., Inc.
Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.
Mack Molding Co., Inc.
Meyer Bros., Jos. H.
National Metal Edge Box Co.

Parfait Powder Puff Co., Inc.
Ritchie & Co., W. C.
Schunack, Inc., C. E.
See-Thru Container Corp.
Sillcocks-Miller Co.
Transparent Specialties Mfg. Co.
Young Bros., Inc.
Young, Inc., Douglas

BOXES, CORRUGATED AND SOLID FIBRE

AAAAAA Ace Paper Box Corp.
Agar Mfg. Corp.
Albany Corrugated Container Corp.
American Box Board Co.
American Can Co.
American Coating Mills, Inc. (**Corrugated**)
American Corrugating Co.
Andrew Co., O. B.
Ashtabula Corrugated Box Co., The
Bird & Son, Inc.
Brack Container Corp.
Consolidated Paper Co.
Container Corp. of America
Corning Fibre Box Corp.
Crescent Box Corp.
Dexter Folder Co.
Eddy Paper Corp., The
Eggerss-O'Flying Co.
Evans Fibre Box, Division of The Hinde & Dauch Paper Corp.
Federal Container Co.
Fibreboard Products, Inc.
Fort Wayne Corrugated Paper Co.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Gaylord Container Corp.
Grand-City Container Corp.
Hercules Box Co.
Hinde & Dauch Paper Co., The
Hummel & Downing Co.
Hunt-Crawford Co., The
Inland Container Corp. (**Corrugated**)
Iowa Fibre Box Co.
Kieckhefer Container Co.
Kress Box Co., F. J.
Mengel Co., Inc., The
National Container Corp.
National Metal Edge Box Co.
New Orleans Paper Factory, Inc.
Old Dominion Box Co., Inc.
Ottawa River Paper Co., The
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Paraffine Companies, Inc.
River Raisin Paper Co.
Rochester Folding Box Co., The
Rockford Fibre Container Co.
Schmidt Lithograph Co.
Schultz Co., A. Geo.
Southern Container Co.
Texas Paper Box Mfg. Co.
U. S. Corrugated-Fiber Box Co., The
Wabash Fibre Box Co.
Waldorf Paper Products Co.
Warner Bros. Co., The
Weber & Co., David
Wurzburg Bros.

BOXES, FANCY WOOD

Arrow Mfg. Co., Inc.
Crafts, Inc.
Dennison Mfg. Co.
Mele Mfg. Co.
Nicoll & Co.
Owens-Illinois Glass Co.
Peterson Bros.
Pilliod Cabinet Co., The
Rueckert Mfg. Co.
Schunack, Inc., C. E.
Sheip Mfg. Co., Henry H.
Warner Bros. Co.
Weaver Mfg. Co.
Wilder Mfg. Co.
Young Bros., Inc.

BOXES, FOLDING AND DISPLAY CARTONS

See Cartons

BOXES, LEATHERETTE

Arrow Mfg. Co., Inc.
Bisler, Inc., G. A.
Bridgeport Bag & Jewelry Case Co.
Buedingen Co., Inc., Ferdinand
Buedingen & Son, Wm.
Crafts, Inc.
Dennison Mfg. Co.
Durand Mfg. Co.
Eureka Paper Box Corp.
Farrington Mfg. Co.
Foster & Cross, Inc.
Harlich Mfg. Co.
Howell & Co., F. M.
Lebanon Paper Box Co.
Lorscheider-Schang Co., Inc., The
Mason Box Co.
Mutual Paper Box Corp.
National Metal Edge Box Co.
Ritchie & Co., W. C.
Schunack, Inc., C. E.
Sheip Mfg. Co., Henry H.
Smith Co., The S. K.
Stone Bros.
Voss Corp., Karl
Warner Bros. Co.
Weaver Mfg. Co.
Wilkins Paper Box Co., Inc.
Young Bros., Inc.
Young, Inc., Douglas

BOXES, MAILING

AAAAAA Ace Paper Box Corp.
American Coating Mills, Inc.
Atlantic Carton Corp.
Brooks & Porter, Inc.
Brown & Bailey Co.
Buedingen Co., Inc., Ferdinand
Burt Co., Inc., F. N.
Cambridge Paper Box Co.
Campbell Box & Tag Co.
Cleveland Container Co.
Consolidated Paper Co.
Container Corp. of America
Deisroth Co., Inc., W. H. (**Kwicklasp**)
Dennison Mfg. Co.
Eureka Paper Box Corp.
Fitzhugh, Inc., Wm. W.
Fort Orange Paper Co.
Foster & Cross, Inc.
Fox Company, The C. J.
Gair Cleveland Cartons, Inc.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Gaylord Container Corp.
Gebhart Folding Box Co.
Gereke-Allen Carton Co.
Hinde & Dauch Paper Co.
Howell & Co., F. M.
International Folding Paper Box Co.
Kieckhefer Container Co.
Lebanon Paper Box Co.
Mason Box Co., The
Michigan Carton Co.
Myers, Inc., J. & P. B.
National Folding Box Co.
National Metal Edge Box Co.
Old Dominion Box Co., Inc.
Owens-Illinois Glass Co.
Paper Package Co.
R. C. Can Co.
Richardson Taylor-Globe Corp., The
Ritchie & Co., W. C.
Rowell Co., Inc., E. N.
Sample-Durick Co., Inc.
Schultz Co., A. Geo.
Schunack, Inc., C. E.
Sears Paper Box Co., Merle
Seeley Tube & Box Co.
Sefton Fibre Can Co.
Shoup-Owens, Inc.
Simplex Paper Box Corp.
Superior Folding Box Co.
Warner Bros. Co., The
Waterbury Paper Box Co.
Wilkins Paper Box Co., Inc.
Wurzburg Bros
Young Bros., Inc.

BOXES, METAL

Advertising Metal Display Co.
Aluminum Co. of America
American Aluminum Ware Co.
American Can Co.
American Coating Mills, Inc.
Anchor Cap & Closure Corp.
Burdick & Son
Chase Brass & Copper Co., Inc., Container & Closure Division
Continental Can Co., Inc.
Dennison Mfg. Co.
Doehler Die Casting Co.
Farrington Mfg. Co.
Grammes & Sons. Inc., L. F.
Gutmann & Co., Ferdinand
Heekin Can Co.
Kep-Ark, Inc.
Majestic Metal Specialties, Inc.
National Can Corp.
Owens-Illinois Can Co.
Scovill Manufacturing Co.
Seymour Products Co., The
Stone Bros., Inc.
Waterbury Button Co., The
Weaver Mfg. Co.
Wurzburg Bros.

BOXES, METAL (Covered and Lined)

Anchor Cap & Closure Corp.
Arrow Mfg. Co., Inc.
Dennison Mfg. Co.
Farrington Mfg. Co.
Grammes & Sons, Inc., L. F.
Stone Bros., Inc.
Waterbury Button Co., The

BOXES, METAL EDGE

Farrington Mfg. Co.
National Metal Edge Box Co.
Robertson Paper Box Co., Inc.
Seaman Box Co.

BOXES, MOLDED PLASTIC

American Insulator Corp.
Armstrong Cork Co., Closure Division
Associated Attleboro Mfrs. Inc.
Auburn Button Works, Inc.
Boonton Molding Co.
Butterfield, Inc., T. F.
Chicago Molded Products Corp.
Colt's Patent Fire Arms Mfg. Co.
Consolidated Molded Products Corp.
Diemolding Corp.
Emeloid Co., Inc.
General Electric Co., Plastics Dept.
General Industries Co., The
Gorham Co.
Kurz-Kasch, Inc.
Mack Molding Co., Inc.
Mundet Cork Corp.
Niagara Insul-Bake Specialty Co., Inc.
Northern Industrial Chemical Co.
Norton Laboratories, Inc.
Plaskon Co., Inc.
Reynolds Spring Co.
Shaw Insulator Co.
Synthetic Plastics Corp.
Tech-Art Plastics Co.
Terkelsen Machine Co.
Waterbury Button Co., The
Wheeling Stamping Co.

XUM

BOXES, MOLDED PULP

Chaspec Mfg. Co.
National Folding Box Co.
Pulp Products Co., Inc.

BOXES, PAPER SET-UP

(A) Machine-made Boxes.
(B) Automatic Machine-made Boxes.
(C) Hand-made Boxes
(D) Hand-made and Machine-made Boxes.
(G.L.) General line except for specialties which are indicated by name.

AAAAAA Ace Paper Box Corp.
Alderman Paper Box Corp. (A, B, C, D, G.L.)
Arrow Mfg. Co., Inc. (C. G.L., Jewelry, Specialties, Metal, Satin lined, Wood, Leather, Paper)
Bisler, Inc., G. A. (A, B, C, D, candy and holiday)
Brick & Ballerstein (A, B, C, D, G.L.)
Buedingen Co., Inc., Ferdinand (A, C, G.L.)
Buedingen & Son, Wm. (A, B, C, D, all types)
Buffington Co., F. H. (A, G.L.)
Burt Co., Inc., F. N. (A, B, C, D, G.L., face powder, perfumery, pill and drug, slide boxes, cigarette boxes)
Cambridge Paper Box Co. (A, B, C, D, G.L., face powder, perfumery, pill and drug, slide, cigarette, candy, mailing)
Campbell Box & Tag Co.
Carter Co., Wm., Paper Box Division
Casselman, T. & E., Inc. (A, B, C, D, G.L.)
Central Paper Box Co.
Chippewa Paper Products, Inc.
Clover Paper Box Co., Inc. (A, B, C, D, G.L., mailing boxes)
Consolidated Box Co., Inc.
Deisroth Co., Inc., W. H. (A, B, C, D, G.L., candy, holiday, "Kwicklasp" mailing)
Delta Paper Boxes, Inc.
Dennison Mfg. Co. (A, B, C, D, G.L.)
Dix, Inc., J. J.
Dorfman & Co., Inc., A.
Durand Mfg. Co. (A, B, C, D, G.L.)
Eureka Paper Box Corp. (A, B, C, D, G.L.)
Fairchild Corp., E. E. (A, B, C, D, G.L.)
Fleisig, Inc., H.
Fort Wayne Paper Box Co. (A, B, C, D, G.L.)
Foster & Cross, Inc. (A, B, C, D, G.L.)
Gair Cleveland Cartons Inc.
Gair Co., Inc., Robert (G.L.)
Gates Paper Co., Ltd.
Gaylord Container Corp. (A, B)
Grand Rapids Paper Box Co. (A, B, C, D, G.L.)
Henry Co., Ira L. (A, C, D, G.L.)
Hess and Densen (A, B, C, D)
Hollywood Paper Box Corp. (A, B, C, D, G.L.)
Howell & Co., F. M. (A, B, D, G.L.)
Illinois Paper Box Co. (A, C, D, G.L.)
Jones Paper Box Co., Jesse (A, B, C, D, G.L.)
Kalamazoo Paper Box Co. (A, B, C, D, G.L.)
Kentucky Paper Box Co. (A, B, C, D, G.L.)
Keystone Box Co. (A, B, C, D, G.L.)
Kieckhefer Container Co. (B, G.L.)
Killian Co., George P. (A, B, C, D, G.L.)
Klein & Co., Inc. (Candy)
Koehl Co., Wm. (A, B, C, D, G.L.)
Kroeck Paper Box Co. (A, G.L.)
Landowne Co., Inc., J. (D, G.L.)
Lebanon Paper Box Co. (A, B, C, D, G.L., Mitre Cigar Boxes)
Lorscheider-Schang Co., Inc., The (A, C, D)
Maryland Paper Box Co. (A, B, D, G.L., Holiday, shelf)
Mason Box Co., The (A, C, D, G.L.)
Miller, Inc., W. P. (G.L.)
Molitor Box Co. (A, B, C, D, G.L.)
Mutual Paper Box Corp. (Leather and Leatherette, Embossed & Fancy)
National Folding Box Co. (A, B, C, D)
National Metal Edge Box Co. (A, B, G.L.)
Neumann Co., The Robert (A, C, D, G.L.)
Ohio Boxboard Co. (A, B, C, D, G.L.)
Old Dominion Box Co., Inc. (A, B, C, D, G.L.)
Paper Package Co. (A, B, C, D, G.L.)
Perfumers and Jewelers Box Co., Inc. (A, B, C, G. L.)
Pharmacy Paper Box Co. (A, B, C)
Pictorial Paper Package Corp. (A, B, C, D, G.L.)
Plumly Co., E. K. (D, G.L., Perfume)
Randolph Paper Box Co. (A, B, D, G.L.)
Rapid Cutting Co. (A, B, G.L.)
Ritchie & Co., W. C. (A, B, C, D, G.L.)
Rowell Co., Inc., E. N. (A, B, D)
Schleicher Paper Box Co., F. J. (B, C, D, candy)
Schoettle Co., Edwin J. (A, B, C, D, G.L.)
Schultz Co., A. Geo. (A, B, C, D, G.L.)
Schultz & Co., H. J. (A, B, C, D, G.L.)
Schunack Inc., C. E. (A, C, D)
Scott & McDonald, Inc. (A, B, C, D, G.L.)
Seaman Box Co., Inc.
Sears Paper Box Co., Merle (A, B, C, D, G.L.)
Seeley Tube & Box Co. (A, C, D)
Shoup-Owens, Inc. (A, B, C, D, G.L.)
Simplex Paper Box Corp. (A, D)
Smith Co., The S. K. (C)
Spitzer Paper Box Co. (A, B)
Star Case Co. (C, Jewelry, Specialties, Leather)
Taylor Box Co. (G.L.)
Trum, Inc., E. J. (A, D, G.L.)
Voss Corp., Karl (A, C, D, G.L., Powder, Perfumery)
Warner Bros. Co., The (A, B, C, D, G.L.)
Waterbury Paper Box Co., The (A, B, C, D, G.L.)
Weaver Mfg. Co.
Whitney & Co. Inc. (D)
Wilkins Paper Box Co., Inc. (A, B, C, D, G.L.)
Wurzburg Bros. (A, C, D)
Young Bros., Inc. (A, B, C, D, G.L.)
Young, Inc., Douglas (A, B, C, D, G.L.)
Youse Co., C. J. (A, B, C, D, candy)
Zipprodt, Inc.

BOXES, WINDOW
(Transparent Cellulose)

AAAAAA Ace Paper Box Corp.
American Coating Mills, Inc.
Atlantic Carton Corp.
Brick & Ballerstein
Brooks & Porter, Inc.
Brown & Bailey Co.
Buedingen Co., Inc., Ferdinand
Burt Co., Inc., F. N.
Cambridge Paper Box Co.
Campbell Box & Tag Co.
Carter Co., Wm., Paper Box Division
Celluloid Corp.
Chicago Carton Co.
Chippewa Paper Products, Inc.
Container Corp. of America
Deisroth Co., Inc., W. H.
Dennison Mfg. Co.
Empire Paper Box Corp.
Eureka Paper Box Corp.
Fitzhugh, Inc., Wm. W.
Forbes Lithograph Co., The
Fort Orange Paper Co.
Foster & Cross, Inc.
Gair Cleveland Cartons, Inc.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Hanger Co. of America, The Henry
Howell & Co., F. M.
International Folding Paper Box Co., Inc.
Interstate Folding Box Co.
Lebanon Paper Box Co.
Mason Box Co., The
Menasha Products Co., The
Meyer Bros., Jos. H.
Michigan Carton Co.
Milprint, Inc.
National Folding Box Co.
National Metal Edge Box Co.
Old Dominion Box Co., Inc.
Paper Package Co.
Parfait Powder Puff Co., Inc.
Pilliod Cabinet Co., The
Richardson Taylor-Globe Corp.
Ritchie & Co., W. C.
Robertson Paper Box Co., Inc.
Rowell Co., Inc., E. N.
Russell Box Co.
Sample-Durick Co., Inc.
Seal, Inc.
Seaman Box Co., Inc.
Seeley Tube & Box Co.
Shoup-Owens, Inc.
Simplex Paper Box Corp.
Stecher-Traung Lithograph Corp.
Superior Folding Box Co.
Sutherland Paper Co.
Trenton Folding Box Co.
U. S. Corrugated-Fiber Box Co., The
Voss Corp., Karl
Waldorf Paper Products Co.
Warner Bros. Co., The
Waterbury Paper Box Co.
Weaver Mfg. Co.
Young Bros., Inc.
Young, Inc., Douglas

CADDIES, CRACKER

Chicago Carton Co.
Consolidated Paper Co.
Container Corp. of America
Continental Can Co.
Dexter Folder Co.
Eddy Paper Corp., The
Empire Box Corp.
Fibreboard Products, Inc.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Gaylord Container Corp.
Hinde & Dauch Paper Co., The
Hummel & Downing Co.
Interstate Folding Box Co.
Kieckhefer Container Co.
Morris Paper Mills
National Can Corp.
National Metal Edge Box Co.
River Raisin Paper Co.
Rochester Folding Box Co.
Rockford Fibre Container Co.
Sefton Fibre Can Co.
Traver Corp.
Waldorf Paper Products Co.

CAN SEALING COMPOUNDS.

Dewey & Almy Chemical Co.

CANS, FIBRE
(Paper and Tin Ends)

American Can Company
Cambridge Paper Box Co.
Canister Co., The
Cin-Made Corp.
Cleveland Container Co.
Container Corp. of America
Cordiano Can Co.
Cross Paper Products Corp.
Fibreboard Products, Inc.
Fonda Container Co.
Gardner-Richardson Co., The
Gates Paper Co., Ltd.
Heekin Can Co., The
Indianapolis Paper Container Co.
Lily Tulip Cup Corp.
Marathon Paper Mills
Menasha Products Co., The
Molitor Box Co.
Morris Paper Mills
Paper Canister Co.
Pulp Products Co., Inc.
R. C. Can Company
Ritchie & Co., W. C.

Rowell & Co., Inc., E. N.
Russell Box Co.
Sealright Co., Inc.
Seeley Tube & Box Co.
Sefton Fibre Can Co.
Stanwood Paper Tube & Can Corp.
Sutherland Paper Co.
Universal Container Co.
Waldorf Paper Products Co.
Wurzburg Bros.

CANS, METAL (Plain and Decorated)

Acme Can Co.
American Can Co.
Anchor Cap & Closure Corp.
Armstrong Paint & Varnish Works
Burdick & Son, Inc.
Clark Co., Inc., Geo. V.
Clark Mfg. Co., J. L.
Consolidated Fruit Jar Co.
Continental Can Co., Inc.
Cordiano Can Co.
Crown Can Co.
Crown Cork & Seal Co., Inc. (Beer)
Federal Tin Co., Inc.
Heekin Can Co.
Liberty Can & Sign Co.
National Can Corp.
Owens-Illinois Can Co.
Phoenix Metal Cap Co.
Robertson Steel & Iron Co., W. F.
Seymour Products Co., The
Victor Metal Products Corp.
Wurzburg Bros.

CANS, METAL (Cellulose Window)

Clark Co., Inc., Geo. V.

CANS, TRANSPARENT (Cellulose)

Cambridge Paper Box Co.
Cleveland Container Co., The
Dobeckmun Co., The
Emeloid Co., Inc.
Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.
R. C. Can Co.
Ritchie & Co., W. C.
See-Thru Container Corp.
Transparent Specialties Mfg. Co.
Waterbury Button Co., The

CAP SEALING COMPOUNDS

Dewey & Almy Chemical Co.
General Plastics, Inc.

CAPS, BOTTLE, CELLULOSE

Armstrong Cork Co., Closure Division
Celon Co.
du Pont de Nemours & Co., Inc., E. I.
Emeloid Co., Inc.
Hazel-Atlas Glass Co.
National Seal Co., Inc.
Parke-Davis Co.
Reynolds Metals Co., Inc.
Sillcocks-Miller Co., The

CAPS, CROWN

Armstrong Cork Co., Closure Division
Consolidated Cork Corp.
Continental Can Co., Inc.
Crown Cork & Seal Co., Inc.
Gutmann & Co., Ferdinand
Mundet Cork Corp.
Wheeling Stamping Corp., The

CAPS, METAL

Acme Metal Cap & Closure Co., Inc.
Aluminum Seal Co.
American Aluminum Ware Co.
Anchor Cap & Closure Corp.
Aridor Co., The
Armstrong Cork Co., Closure Division
Bernardin Bottle Cap Co., Inc.
Brass Goods Mfg. Co.
Bridgeport Metal Goods Mfg. Co., The
Carvin Bottle Cap Corp.
Chase Brass and Copper Co., Inc.
Consolidated Fruit Jar Co.
Crown Cork & Seal Co., Inc.
Empire Metal Cap Co.
Federal Tool Corp.
Food Dispenser Co.
Guardian Safety Seal Co.
Gutmann & Co., Ferdinand
Hazel-Atlas Glass Co.
Kep-Ark, Inc.
Mundet Cork Corp.
National Can Corp.
National Metal Cap Co.
National Seal Company, Inc.
New England Collapsible Tube Co.
No-Kap Closures, Inc.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Phoenix Metal Cap. Co.
Reynolds Metals Co., Inc.
Scovill Manufacturing Co.
Sefton Fibre Can Co.
Thorn Tite Tops, Inc.
White Cap Co.
White Metal Manufacturing Co.
Williams Sealing Corp.
Wirz, Inc., A. H.
Wurzburg Bros.

CAPS, METAL VACUUM

Aluminum Seal Co.
Anchor Cap & Closure Corp.
Aridor Co., The
Armstrong Cork Co., Closure Division
Crown Cork & Seal Co., Inc.
Gutmann & Co., Ferdinand
National Seal Co., Inc.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Phoenix Metal Cap Co.
White Cap Co.
Wurzburg Bros.

CAPS, MOLDED PLASTIC

American Insulator Corp.
Anchor Cap & Closure Corp.
Armstrong Cork Co., Closure Division
Associated Attleboro Mfrs., Inc.
Auburn Button Works, Inc.
Colt's Patent Fire Arms Mfg. Co.
Dodge Cork Co., Inc.
Emeloid Co., Inc.
Erie Resistor Corp.
General Electric Co., Plastics Dept.
Kurz-Kasch, Inc.
Mack Molding Co., Inc.
Mundet Cork Corp.
Northern Industrial Chemical Co.
Norton Laboratories, Inc.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Reynolds Spring Co.
Synthetic Plastics Corp.
Tech-Art Plastics Co.
Terkelsen Machine Co.
Victor Metal Products Corp.
Waterbury Button Co., The
Wheeling Stamping Co.
Wurzburg Bros.

CAPS, PAPER

American Seal-Kap Corp.
Armstrong Cork Co., Closure Division
Cambridge Paper Box Co.
Cleveland Container Co., The
Cross Paper Products Corp.
Gates Paper Co., Ltd.
General Felt Products, Inc.
Indianapolis Paper Container Co.
Kep-Ark, Inc.
Lowe Paper Co.
Paterson Parchment Paper Co.
R. C. Can Co.
Ritchie & Co., W. C.
Sealright Co., Inc.
Seeley Tube & Box Co.
Sefton Fibre Can Co.
Wurzburg Bros.

CAPSULES (Cellulose)

Armstrong Cork. Co.
Emeloid Co., Inc.
Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.

CAPSULES AND TUBES (Metal)

Aluminum Co. of America
Peerless Tube Co.
Reynolds Metals Co., Inc.
Standard Specialty & Tube Co.
Sun Tube Corp.
Victor Metal Products Corp.
Wheeling Stamping Co., The

CARDBOARD (Clay-Coated)

See Box Board, Clay-Coated

CARTON LINERS (For Folding Boxes)

Ace Carton Corp.
American Coating Mills, Inc.
American Paper Goods Co.
Atlantic Carton Corp.
Ben-Mont Papers, Inc.
Central Waxed Paper Co.
Continental Bag Specialties Corp.
Continental Color Corp.
du Pont de Nemours & Co., Inc., E. I.
Equitable Paper Bag Co., Inc.
Ferguson Co., J. L.
Gardner-Richardson Co., The
Hamersley Mfg. Co., The
Hartford City Paper Co.
Hazen Paper Co.
Henle Wax Paper Mfg. Co., Inc., The
Kalamazoo Vegetable Parchment Co.
Kieckhefer Container Co.
Kimberly-Clark Corp.
Lowe Paper Co.
Marathon Paper Mills
Menasha Products Co., The
Nashua Gummed & Coated Paper Co.
Newark Paraffine & Parchment Paper Co.
Oneida Paper Products, Inc.
Owens-Illinois Glass Co.
Paterson Parchment Paper Co.
Pioneer Paper Stock Co.
Reynolds Metals Co., Inc.
Rhinelander Paper Co.
Riegel Paper Corp.
Sutherland Paper Co.
Sweetnam, Inc., Geo. H.
Sylvania Industrial Corp.
Traver Corp.
Union Bag & Paper Corp.
West Carrollton Parchment Co.
Westfield River Paper Co., Inc.
Wurzburg Bros.

XUM

CARTONS, FOLDING AND DISPLAY

AAAAAA Ace Paper Box Corp.
Ace Carton Corp.
Albert Paper Box Co.
American Box Board Co.
American Coating Mills, Inc.
American Colortype Co.
Atlantic Carton Corp.
Badger Carton Co.
Bloomer Bros. Co.
Brooks Bank Note Co.
Brooks & Porter, Inc.
Brown & Bailey Co.
Burt Co., Inc., F. N.
Cambridge Paper Box Co.
Campbell Box & Tag Co.
Chicago Carton Co.
Chippewa Paper Products, Inc.
Consolidated Box Co., Inc.
Consolidated Paper Co.
Container Corp. of America
Continental Folding Paper Box Co.
Crook Paper Box Co.
Deisroth Co., Inc., W. H.
Dennison Mfg. Co.
Densen-Banner Co., Inc.
Downingtown Paper Box Co.
Einson-Freeman Co., Inc.
Empire Box Corp.
Federal Carton Corp.
Fibreboard Products, Inc.
Fitzhugh, Inc., Wm. W.
Forbes Lithograph Co., The
Fort Orange Paper Co.
Fort Wayne Paper Goods Co.
Fox Company, The C. J.
Foxon Co., The
Gair Cleveland Cartons, Inc.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Gaylord Container Corp.
Gebhart Folding Box Co.
General Carton Corp.
Gereke-Allen Carton Co.
Guilford Folding Box Co., The
Heywood Co., Inc., R. R.
Hinde & Dauch Paper Co., The
Howell & Co., F. M.
Hummel & Downing Co.
Indianapolis Paper Container Co.
International Folding Paper Box Co., Inc.
International Printing Co.
Interstate Folding Box Co.
Kieckhefer Container Co.
Kindred, MacLean & Co., Inc.
Krause, Inc., Richard M., (metallic coated)
Lebanon Paper Box Co.
Lord Baltimore Press
Lowe Paper Co.
Menasha Products Co.
Michigan Carton Co.
Milprint, Inc.
Morris Paper Mills
Myers, Inc., J. & P. B.
National Folding Box Co.
National Metal Edge Box Co.
New England Collapsible Tube Co.
Old Dominion Box Co., Inc.
Owens-Illinois Glass Co.
Paper Package Co.
Pictorial Paper Package Corp.
Quad-Color, Inc.
Randolph Box & Label Co.
Reynolds Metals Co., Inc.
Richardson Taylor-Globe Corp.
Robertson Paper Box Co., Inc.
Rochester Folding Box Co.
Rossotti Lithographing Co.
Russell Box Co.
Sample-Durick Co., Inc.
E. F. Schmidt Co.
Schultz Co., A. Geo.
Shellmar Products Co.
Shoup-Owens, Inc.
Shuttleworth Carton Co., Inc.
Simplex Paper Box Corp.
Snyder & Black, Inc.
Spear Box Co., Inc.
Stecher-Traung Lithograph Corp.
Stone & Forsyth Co.
Superior Folding Box Co.
Sutherland Paper Co.
Trenton Folding Box Co.
Trinity Paper Box Co.
U. S. Printing & Litho. Co., The
Waldorf Paper Products Co.
Warner Bros. Co., The
Weaver Mfg. Co.
Whitney & Co., Inc.
Wolverine Carton Co.
Wurzburg Bros.
Zipprodt, Inc.

CARTONS, PARAFFINED

American Coating Mills, Inc.
Atlantic Carton Corp.
Bloomer Bros. Co.
Brooks Bank Note Co.
Brown & Bailey Co.
Butler Paper Products Co.
Campbell Box & Tag Co.
Chicago Carton Co.
Consolidated Paper Co.
Container Corp. of America
Eddy Paper Corp., The
Fibreboard Products, Inc.
Fort Orange Paper Co.
Gair Cleveland Cartons, Inc.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Gaylord Container Corp.
Gereke-Allen Co.
Hummel & Downing Co.
Kieckhefer Container Co.
Menasha Products Co., The
Michigan Carton Co.
Morris Paper Mills
National Folding Box Co.
National Metal Edge Box Co.
Old Dominion Box Co., Inc.
Paper Package Co.
Richardson Taylor-Globe Corp.
Rockford Fibre Container Co.
Russell Box Co.
Shuttleworth Carton Co., Inc.
Sutherland Paper Co.
Waldorf Paper Products Co.
Warner Bros. Co., The
Wurzburg Bros.

CASES, SAMPLE

American Aluminum Ware Co., (Aluminum)
Arrow Mfg. Co., Inc.
Bridgeport Bag & Jewelry Case Co.
Buedingen Co., Inc., Ferdinand
Buedingen & Son, Wm.
Cambridge Paper Box Co.
Central Paper Box Co.
Crafts, Inc.
Dennison Mfg. Co.
Eureka Paper Box Corp.
Farrington Mfg. Co.
Mason Box Co.
Mutual Paper Box Co.
Mele Mfg. Co., Inc.
Nalco, Inc.
National Metal Edge Box Co.
Nicoll & Co.
Paper Package Co.
Parks Co., N. W.
Pilliod Cabinet Co.
Ritchie & Co., W. C.
Rueckert Mfg. Co.
Schunack, Inc., C. E.
Sheip Mfg. Co., Henry H.
Smith Co., The S. K.
Star Case Co.
Voss Corp., Karl
Warner Bros. Co., The
Weaver Mfg. Co.
Wilder Mfg. Co.
Wurzburg Bros.

CELLOPHANE

du Pont de Nemours & Co., Inc., E. I., Cellophane Division, "Dupont Cellophane"
Sylvania Industrial Corp.
(Sylvania Cellophane) "Sylphrap"

CELLULOSE ACETATE (Sheets & Rolls)

Celluloid Corp.
du Pont de Nemours & Co., Inc., E. I.
Eastman Kodak Co.
Micacrystal Products Co.
Monsanto Chemical Co., Plastics Div.
Nixon Nitration Works (Sheets)

CELLULOSE NITRATE

Celluloid Corp.
du Pont de Nemours & Co., Inc., E. I.
Eastman Kodak Co.
Monsanto Chemical Co., Plastics Div.
Nixon Nitration Works

CELLULOSE, SHREDDED

Ben-Mont Papers, Inc.
Brooks Paper Co.
Crystal Tissue Co., The
Dennison Mfg. Co.
Dobeckmun Co., The
du Pont de Nemours & Co., Inc., E. I.
Hy-Sil Mfg. Co.
Pioneer Paper Stock Co.
Riegel Paper Corp.
Sweetnam, Inc., Geo. H.
Sylvania Industrial Corp.
Traver Corp.

CELLULOSE, TRANSPARENT (Converters, Fabricators and Printers)

Ben-Mont Papers, Inc.
Cambridge Paper Box Co.
Caton Printing Co.
Columbia Products Corp.
Continental Bag Specialties Corp.
Crystal Tissue Co., The
Cupples-Hesse Envelope & Litho. Co.
Daniels Mfg. Co.
(Printers)
Dennison Mfg. Co.
Dobeckmun Co., The
Emeloid Co., Inc.
Fibre Cord Co., Inc.
Food Packaging, Inc.
Forbes Lithograph Co., The
Freydberg Bros., Inc.
Hanger Co. of America, The Henry
Hazen Paper Co.
Hy-Sil Mfg. Co.
Liebs Co., Inc., L. A.
Lowery & Schwartz, Inc.
Marvellum Co., The
Matthias Paper Corp.
Meyer Bros., Jos. H.
Micacrystal Products Co.
Milprint, Inc.
Munson Bag Co., The
Nashua Gummed & Coated Paper Co.
Oneida Paper Products Inc.
Print-A-Tube Co.
Royal & Co., Thomas M.
Seaman Box Co.
See-Thru Container Corp.
Shellmar Products Co.
Sweetnam, Inc., Geo. H.
Transparent Specialties Mfg.
Traver Corp.
Union Bag & Paper Corp.
United States Envelope Co.
Welsh Paper Co.

CELLULOSE, TRANSPARENT (Moisture and Greaseproof)

American Products Mfg. Co.
Celluloid Corp.
du Pont de Nemours & Co., Inc., E. I.
Eastman Kodak Co.
Milprint, Inc.
Monsanto Chemical Co.
Sylvania Industrial Corp.

CHIPBOARD

American Box Board Co.
American Coating Mills, Inc.
Butterfield-Barry Co.
Chippewa Paper Products, Inc.
Consolidated Paper Co.
Container Corp. of America
Continental Color Corp.
Eddy Paper Corp., The
Federal Paper Board Co., Inc.
Fibreboard Products, Inc.
Fort Orange Paper Co.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Hinde & Dauch Paper Co., The
Kieckhefer Container Co.
La Boiteaux Co., The
Michigan Carton Co.
Miller Paper Co.
National Folding Box Co.
Owens-Illinois Pacific Coast Co.
Riegel Paper Corp.
River Raisin Paper Co.
Rockford Fibre Container Co.
Schmidt & Ault Paper Co.
Sutherland Paper Co.
United Paperboard Co.
Waldorf Paper Products Co.

CLOSURES

(A) Single Seal Closures
(B) Re-Seal Closures
(C) Secondary
(D) Special Closures
(E) Sundry Closures

Aluminum Seal Co. (A, B, C, D)
American Aluminum Ware Co. (C)
American Star Cork Co., Inc. (A, B)
Anchor Cap & Closure Corp. (A, B, C, D)
Aridor Co., The (B)
Armstrong Cork Co. (A, B, C, D)
Bakelite Corp. (A, B, C, D)
Beetle Products Division of American Cyanamid Co. (D)
Betner Co., Benj. C. (B)
Bostitch, Inc. (D)
Chicago Molded Products Corp. (C)
Carvin Bottle Cap Corp. (A, C, D)
Colt's Patent Fire Arms Mfg. Co. (A, B, C, D)
Consolidated Fruit Jar Co. (C)
Cordiano Can Co. (D)
Crown Cork & Seal Co., Inc. (A, B, C)
Dobeckmun Co., The (C)
Dodge Cork Co., Inc. (B, C)
Food Dispenser Co. (D)
Frank Machine Works, Julius (A, B, C, D)
Guardian Safety Seal Co. (C)
Gutmann & Co., Ferdinand (A, B, C)
Kep-Ark, Inc. (C)
Mundet Cork Corp., crown caps (B, C, D)
National Seal Co., Inc. (B, C, D)
No-Kap Closures, Inc. (D)
Owens-Illinois Glass Co. (A, B, C, D)
Phoenix Metal Cap Co. (A, B)
Reynolds Metals Co., Inc. (B)
Scovill Manufacturing Co. (B, C)
Seal, Inc. (A, D)
Sylvania Industrial Corp. (C)
Terkelsen Machine Co. (B, C, D)
Thorn Tite Tops, Inc. (A, C)
Waterbury Button Co., The (C)
White Cap Co. (B)
Wurzburg Bros. (A)

CLOTH, LACQUERED

Athol Mfg. Co.
Atlas Powder Co., Zapon Div. and Zapon-Brevolite Div.
Bakelite Corp.
Columbus Coated Fabrics Corp.
Dejonge & Co., Louis
du Pont de Nemours & Co., Inc., E. I.
Griffin, Campbell, Hayes, Walsh, Inc.
Hazen Paper Co.
Holliston Mills, Inc., The
Hy-Sil Mfg. Co.
Keratol Co.
Peerless Roll Leaf Co.
Permatex Fabrics, Inc.
Pyrotex Leather Co.
Revolite Corp.
Roxalin Flexible Lacquer Co.
Seal, Inc. (Heat-Sealing)
Textileather Corp.
U. S. Rubber Products, Inc.
Whiting Co., Inc., C. R.

COATINGS, PROTECTIVE

(*See Varnishes & Lacquers*)

COLLAPSIBLE TUBES

See Tubes, Collapsible (Aluminum, Lead, Tin & Alloys)

COMPACTS, FANCY METAL

Associated Attleboro Mfrs., Inc.
Brass Goods Mfg. Co.
Bridgeport Metal Goods Mfg. Co., The
Chase Brass & Copper Co., Inc.
Farrington Mfg. Co.
Grammes & Sons, Inc., L. F.
Majestic Metal Specialties, Inc.
Norton Laboratories, Inc.
Sagamor Metal Goods Corp.
Scovill Manufacturing Co.

CONTAINERS, MOLDED PULP (Bottles, Jars, etc.)

Holed-Tite Packing Corp.
Keyes Fibre Co., Inc.
National Folding Box Co.
Owens-Illinois Glass Co.
Pulp Products Co., Inc.
Victor Metal Products Corp.
Wheeling Stamping Co., (Vials)

CONTAINERS, PAPER (Nesting, Waxed and Unwaxed)

American Paper Goods Co.
Cambridge Paper Box Co.
Individual Drinking Cup Co.
Lily Tulip Cup Corp.
Menasha Products Co., The
Mono Service Co.
National Folding Box Co.
R. C. Can Co.
Russell Box Co.
Sealright Co., Inc.
Sutherland Paper Co.
Waldorf Paper Products Co.

CONTAINERS, TRANSPARENT CELLULOSE

Cleveland Container Co.
Emeloid Co., Inc.
Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.
Meyer Bros., Joseph H.
See-Thru Container Corp.

CONVEYORS, PACKAGE, ALL TYPES

Acme Steel Co., (steel)
Alvey-Ferguson Co., Inc., The
Amsco Packaging Machinery, Inc.
Automatic Scale Co.
Cambridge Wire Cloth Co., The
Chain Belt Co.
Colton Co., Arthur
Consolidated Packaging Machinery Corp.
Container Equipment Corp.
Dodge Mfg. Co.
Elgin Mfg. Co.
Frank Machine Works, Julius
Gifford-Wood Co.
Horix Manufacturing Co.
Jeffrey Mfg. Co.
Kiefer Machine Co., Karl
Lamson Co., The
Link-Belt Co.
Logan Co.
Mathews Conveyer Co.
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
Ross Engineering Corp., J. O.
Standard Conveyor Co.
Stokes Machine Co., F. J.
Toledo Scale Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.
U. S. Bottlers Machinery Co.
U. S. Rubber Products, Inc.

CORD, CELLULOSE

Dennison Mfg. Co.
Fibre Cord Co., Inc.
Franke Sons Co., The
Hy-Sil Mfg. Co.
Safeway Products Corp.
Sylvania Industrial Corp.

CORK PAPER (Real Cork)

Armstrong Cork Co., Closure Division
Dodge Cork Co., Inc.
Japan Paper Co.
Mundet Cork Corp., (Cork Sheets)

CORKS

American Cork Co.
American Star Cork Co., Inc,
Armstrong Cork Co., Closure Division
Cork Import Corp.
Dodge Cork Co., Inc.
Mundet Cork Corp.
Truslow & Fulle
Wurzburg Bros.

CORKS, ALUMINUM TOP

American Aluminum Ware Co.
Armstrong Cork Co., Closure Division
Consolidated Fruit Jar Co.
Dodge Cork Co., Inc.
Mundet Cork Corp.

CORKS, MOLDED TOP

Armstrong Cork Co., Closure Division
Bakelite Corp.
Colt's Patent Fire Arms Mfg. Co.
Dodge Cork Co., Inc.
General Plastics, Inc.
Mack Molding Co., Inc.
Mundet Cork Corp.
Plaskon Co., Inc.
Waterbury Button Co., The
Wurzburg Bros.

CORKS, WOOD TOP

American Star Cork Co., Inc.
Armstrong Cork Co., Closure Division
Dodge Cork Co., Inc.
Mundet Cork Corp., (Embossed)
Wurzburg Bros.

COUNTER DISPLAY

See Boxes, Folding and Display Cartons
See Boxes, Paper Set- Up
See Displays, Counter
See Display Fixtures, Metal
See Lithographers
See Molders, Custom

CREPE WADDING

Dennison Mfg. Co.
Kimberly-Clark Corp.
Pioneer Paper Stock Co.
Sweetnam, Inc., Geo. H.
Terkelsen Machine Co.
Traver Corp.

DECALCOMANIA

American Decalcomania Co.
Consolidated Lithographing Corp.
Mason & Sons, F. E.
Meyercord Co.
Milprint, Inc.
Palm, Fechteler & Co.
Quad-Color, Inc.
Traver Corp.
United States Printing & Lithograph Co. American Lithographic Division

DIES, PAPER CUTTING

Helmold & Bro., Inc., J. F.
Simonds Saw & Steel Co.

DISPENSERS, PUMP

Federal Tool Corp.
Food Dispenser Co.

DISPLAY CABINETS (Small, Wood)

Arrow Mfg. Co., Inc.
Central Paper Box Co.
Crafts, Inc.
Nicoll & Co.
Peterson Bros.
Pilliod Cabinet Co., The
Rueckert Mfg. Co.
Schunack, Inc., C. E.
Sheip Mfg. Co., Henry H.
Star Case Co.
Stensgaard & Associates, W. L.
Wilder Mfg. Co.

DISPLAY FIXTURES, METAL (Counter, Floor and Window)

Advertising Metal Display Co.
American Aluminum Ware Co., (Aluminum)
Central Wire Frame Co.
Darling Co., L. A.
Diamond Press, Inc., Display-Rite Div.
Helmco, Inc.
Kerr Wire Products Co.
Lyon Metal Products, Inc.
National Can Corp.
Nelke Sign Mfg. Co., Inc.
Owens-Illinois Can Co.
Stensgaard & Associates, W. L.
Union Steel Products Co.
United Steel & Wire Co., Inc.
Washburn Co., The

DISPLAY, WINDOW AND COUNTER

See Boxes, Folding and Display Cartons
See Boxes, Paper Set- Up
See Lithographers
See Molders, Custom

DISPLAYS, COUNTER (Of Glass and Wood)

Arrow Mfg. Co., Inc.
Crafts, Inc.
Diamond Press, Inc., Display-Rite Div.
Glass Display, Inc.
Kay Displays, Inc.
Kayton, Robert
Ketterlinus Litho. Mfg. Co.
Nicoll & Co.
Peterson Bros.
Pilliod Cabinet Co., The
Quad-Color, Inc.
Rueckert Mfg. Co.
Sheip Mfg. Co., Henry H.
Stensgaard & Associates, W. L.
United States Printing & Lithograph Co., The
Wilder Mfg. Co.
Wood Electric Co. Inc., C. D.
Young Bros., Inc.

DISPLAYS, FLOOR STAND (Corrugated & Solid Fibre)

Albany Corrugated Container Corp.
American Box Board Co.
American Coating Mills, Inc. (Corrugated)
Consolidated Paper Co.
Container Corp. of America.
Dennison Mfg. Co.
Diamond Press Inc., Display-Rite Div.
Eddy Paper Corp., The
Gair Cleveland Cartons, Inc.
Gair Co., Inc., Robert
Grand-City Container Corp.
Hinde & Dauch Paper Co., The
Inland Container Corp. (Corrugated)
Kieckhefer Container Co.
National Container Corp.
National Folding Box Co.
Ottawa River Paper Co., The
Quad-Color, Inc.
River Raisin Paper Co.
Rockford Fibre Container Co.
Schmidt Lithograph Co.
Stensgaard & Associates, W. L.
U. S. Corrugated-Fiber Box Co., The
Waldorf Paper Products Co.

DISPLAYS, FLOOR STAND (Lithographed)

See Lithographers

DISPLAYS, MOLDED PULP

Chaspec Mfg. Co.

DISPLAYS, MOTION, MECHANISM

Gregory Motors, Inc.
Mergenthaler Linotype Co.
National Carbon Co., Inc.
Reynolds Electric Co.
Speedway Mfg. Co., The
Wood Electric Co., Inc., C. D.

DISPLAYS, TRANSPARENT, CELLULOSE

Emeloid Co., Inc., The
Meyer Bros., Jos. H.
Parfait Powder Puff Co. Inc.
See-Thru Container Corp.
Transparent Specialties Mfg. Co.

DROPPERS, BOTTLE

Anchor Cap & Closure Corp.
Armstrong Cork Co.
Kimble Glass Co.
Maryland Glass Corp.
Owens-Illinois Glass Co.
Pennsylvania Glass Products Co.
Scovill Manufacturing Co.

DROPPERS, MEDICINAL (Cellulose)

Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.

DRUMS, FIBRE

American Can Corp., The
Arvey Corp., The
Carpenter Container Co., Inc.
Champion Container Co.
Cleveland Container Co.
Container Co., The
Emery Carpenter Container Co.
Gardner-Richardson Co.
Knowlton Co., M. D.
Master Package Corp.
Morris Paper Mills
National Folding Box Co.
Philadelphia Carpenter Container Co., Inc.

DRUMS, STEEL

Wheeling Corrugating Co., Steel Container Div.
Wilson & Bennett Mfg. Co., The

EMBOSSING ROLLS (Paper)

Dornbusch Agency, Inc., The
Hudson-Sharp Machine Co.
L. C. Machinery Co., Inc.
Marconetti, Inc., A. E.
Model Machinery Corp.
Waldron Corp., John
Walther & Co., Inc.
Williams & Co., Inc., Chas. W.

ENVELOPES

American Paper Goods Co.
Brooks Bank Note Co.
Brown Bag Filling Machine Co., The
Cupples-Hesse Envelope & Litho. Co.
Dennison Mfg. Co.
Dobeckmun Co., The
Equitable Paper Bag Co., Inc.
Forbes Lithograph Co., The
Michigan Lithographing Co.
Milprint, Inc.
Munson Bag Co., The
Royal Paper Corp.
Royal & Co., Thomas M.
Seal, Inc. (Heat-Sealing)
Shellmar Products Co.
Stecher-Traung Lithograph Corp. (For Seeds)
Union Bag & Paper Corp.
United States Envelope Co.
United States Printing & Lithograph Co., The, American Lithographic Division
Wolf Bros.
Wurzburg Bros.

ENVELOPES, CLOTH

Cottonluxe Manufacturing Co.

ENVELOPES, TRANSPARENT CELLULOSE

See Bags, Transparent Cellulose

EXCELSIOR PAPER

Ben-Mont Papers, Inc.
Crystal Tissue Co., The
Daniels Mfg. Co.
Kalamazoo Vegetable Parchment Co.
La Monte & Son, George
Paterson Parchment Paper Co.
Pioneer Paper Stock Co.
Sweetnam, Inc., Geo. H.
Traver Corp.

FILTERS & FILTER PAPER

Filler Machine Co., Inc.
Kiefer Machine Co., The Karl
Pneumatic Scale Corp., Ltd.
U. S. Bottlers Machinery Co.

FINISHERS, CUSTOM

See Paper Finishers

FOIL, METAL (Aluminum, Tin, Lead, etc.)

Aldine Paper Co.
Aluminum Co. of America (**aluminum only**)
American Brass Co., The (copper)
American Foil Corp.
Ben-Mont Papers, Inc.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Dejonge & Co., Louis
Foil Products Corp.
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Japan Paper Co.
Keller-Dorian Paper Co., Inc.
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Corp.
Miller Paper Co.
Milprint, Inc.
Paper Affiliates Co., Inc.
Paper City Mfg. Co., Inc.
Pauli Corp., Karl
Peerless Roll Leaf Co., Inc.
Reynolds Metals Co., Inc.
Seal, Inc. (**Heat Sealing**)
Standard Rolling Mills, Inc.
Steffens, Jones & Co., Inc.
Walther & Co., Inc.
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

FOLDING BOXES

See Boxes, Folding and Display Cartons

GLASS, ROD AND TUBING

Corning Glass Co.
Kimble Glass Co.

GLUES AND PASTES

See Adhesives

GOLD LEAF

See Roll Leaf

GUMMED TAPE, CLOTH

Artcote Papers, Inc.
Central Paper Co.
Chicago Gum Tape Co.
Chippewa Paper Products, Inc.
Dejonge & Co., Louis
Dennison Mfg. Co.
Eastman Kodak Co.
Ever Ready Label Corp.
Freydberg Bros., Inc.
Gair Co., Inc., Robert
Griffin, Campbell, Hayes, Walsh, Inc.
Gummed Products Co., The
Gummed Tape & Devices Co.
Holliston Mills, Inc.
Holyoke Coated & Printed Paper Co.
Knowlton Co., M. D.
McLaurin-Jones Co.
Matthias Paper Corp.
May Co., J. L.
Mid-States Gummed Paper Co.
Minnesota Mining & Mfg. Co.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Queen City Paper Co.
Rexford Paper Co.
Reyburn Mfg. Co., Inc., The
Seal, Inc. (**Heat Sealing**)
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

GUMMED TAPE (For Transparent Cellulose)

Dennison Mfg. Co.
Du Pont de Nemours & Co., Inc., E. I.
Graeme Harrison Products, Inc.
Hy-Sil Mfg. Co.
Minnesota Mining & Mfg. Co.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Reyburn Mfg. Co., Inc., The

GUMMED TAPE (Plain, Printed, Colored)

Better Packages, Inc.
Bradner Smith & Co.
Central Paper Co.
Chicago Gummed Tape Co.
Chippewa Paper Products, Inc.
Crowell Corp., The
Dennison Mfg. Co.
Edgewater Paper Co.
Ever Ready Label Corp.
Gair Co., Inc., Robert
Gummed Products Co., The
Gummed Tape & Devices Co.
Holyoke Coated & Printed Paper Co.
Knowlton Co., M. D.
Lambooy Label & Wrapper Co.
McLaurin-Jones Co.
Matthias Paper Corp.
Metal Specialties Mfg. Co.
Mid-States Gummed Paper Co.
Mosinee Paper Mills Co.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Rexford Paper Co.
Shuman Co., Frank G.
Standard Paper Co.
Union Gummed Products Co.
Williams & Co., Inc., Chas. W.
Wortendyke Mfg. Co.
Wurzburg Bros.

HAMMERS & TACKERS, AUTOMATIC FEED

Bostitch, Inc.
Heller Co., The

HANDLES AND KNOBS (Molded Plastic)

See Molders, Custom

INK, LITHOGRAPHING AND PRINTING

Capitol Printing Ink Co., Inc.
Continental Color Corp.
Crescent Ink & Color Co. of Pa.
Davids Ink Co., Thaddeus
Eagle Printing Ink Co.
Fuchs & Lang Mfg. Co.
General Printing Ink Corp.
Huber, Inc., J. M.
International Printing Ink Corp.
Johnson, Inc., C. Eneu
Levey Co., Inc., Frederick H.
Morrill Co., Geo. H., Division of General Printing Ink Corp.
Peerless Roll Leaf Co., Inc.
Pope & Gray, Inc.
Sinclair & Carroll Co., Inc.
Sinclair & Valentine
Sun Chemical & Color Co.
Triangle Ink & Color Co.
Ullman Co., Sigmund
Wood, Nathan & Virkus Co., Inc. (special lustre glass and metallic inks)

INK, PRINTING (For Glassine, Transparent Cellulose)

Capitol Printing Ink Co., Inc.
Crescent Ink & Color Co. of Pa.
Eagle Printing Ink Co.
Fuchs & Lang Mfg. Co., Division of General Printing Ink Corp.
General Printing Ink Corp.
Huber, Inc., J. M.
International Printing Ink Corp.
Johnson, Inc., C. Eneu
Levey Co., Inc., Frederick H.
Morrill Co., Geo. H., Division of General Printing Ink Corp.
Pope & Gray, Inc.
Sinclair & Carroll Co., Inc.
Sinclair & Valentine
Sun Chemical & Color Corp.
Triangle Ink & Color Co., Inc.
Ullman Co., Sigmund

INSERTS, PACKAGE

See Lithographers

JAR COVERINGS

See Caps (various headings)

JARS, GLASS (Packers' Tumblers)

Anchor Hocking Glass Corp.
Armstrong Cork Co.
Ball Bros. Co.
Brockway Glass Co., Inc.
Fairmount Glass Works, Inc.
Federal Glass Co.
General Glass Co.
Hart Glass Mfg. Co.
Hazel-Atlas Glass Co.
Libbey Glass Mfg. Co.
Owens-Illinois Glass Co.
Owens-Illinois Pacific Coast Co.
Tygart Valley Glass Co.

JARS, MOLDED

See Molders, Custom

JARS, OPAL

Anchor Hocking Glass Corp.
Brockway Glass Co., Inc.
Carr-Lowrey Glass Co.
Hazel-Atlas Glass Co.
Owens-Illinois Glass Co.
Ruth Glass Co.
Wheaton, T. C.
Whitall-Tatum Co., Dept. (Armstrong Cork Co.)
Wurzburg Bros.

JARS, POTTERY

Bennett Pottery Co., Edwin
Buckeye Pottery Co.

Canonsburg Pottery Co.
Cliftwood Potteries, Inc.
Cronin China Co.
Fulper Pottery Co.
Haeger Potteries, Inc.
Hull Pottery Co.
McNicol Chin Co., P. A.
Mercer Pottery Co.
Paden City Pottery Co.
Pfaltzgraff Pottery Co.
Red Wing Union Stoneware Co.
Robinson-Ransbottom Pottery Co.
Roseville Pottery Co.
Tycer Pottery Co., W. I.
U. S. Stoneware Co.
Weller Company, S. A.
Western Pottery Co.
Western Stoneware Co.

LABELS AND SEALS
(Flat and Embossed)

American Label Co., (labels)
Andersen, A. J.
Ben-Mont Papers, Inc.
Brett Litho. Co.
Brooks Bank Note Co.
Brooks & Porter, Inc.
Calvert Lithographing Co., The
Cambridge Paper Box Co.
Cameo Die & Label Co.
Consolidated Lithographing Corp.
Crown Paper Box & Label Co.
Dennison Mfg. Co.
Ever Ready Label Corp.
Fenton Label Co.
Fitzhugh, Inc., Wm. W.
Forbes Lithograph Co., The
Foxon Co., The
French-Bray Printing Co., The
Fuller Label & Box Co.
Grammes & Sons, Inc., L. F.
Grand Rapids Label Co.
Hanograf Corp.
Heywood Co., Inc., R. R.
Horn, John
Howell & Co., F. M.
Kaumagraph Co.
Ketterlinus Litho. Mfg. Co.
Kittredge & Co., R. J.
Krause, Inc., Richard M.
Lambooy Label & Wrapper Co.
Lehmann Printing & Lithographing Co.
Lord Baltimore Press
Mason & Sons, F. E.
May Co., The J. L.
Michigan Litho. Co.
Milwaukee Label & Seal Co.
Muirson Label Co., Inc.
Nalco, Inc.
National Color Printing Co., Inc., The
Outserts, Inc. (combination folder and label)
Pacific Fine Arts-Pacific Label Co.
Palm, Fechteler & Co.
Reyburn Mfg. Co., Inc., The
Reynolds Metals Co., Inc.
Robinson Tag & Label Co.
Rode & Brand
Rossotti Lithographing Co. Inc.
Royal & Co., Thomas M.
St. Louis Sticker Co.
E. F. Schmidt Co.
Schmitt & Co., Inc., Geo.
Seal, Inc., (Heat-Sealing)
Shellmar Products Co.
Shuman Co., Frank G.
Stanley Mfg. Co., The
Stecher-Traung Lithograph Corp.
Strobridge Lithographing Co.
Tablet & Ticket Co., The
Tompkins' Label Service
Trautmann, Bailey & Blampey
Unique Printed Products Co., Inc.
United States Printing & Litho. Co., The
Waldorf Paper Products Co.
Warner Bros. Co., The
Weil Sons Litho. Co., David
Western Label Co.
Wheeler-Van Label Co.
Wood, Nathan & Virkus Co., Inc.
Woodward & Tiernan Printing Co.
Wurzburg Bros.
Wynekoop Co., Walker

LABELS, MAILING AND SHIPPING

Barlett Label Co.
Cameo Die & Label Co.
Dennison Mfg. Co.
Ever Ready Label Corp.
Fenton Label Co.
French-Bray Printing Co., The
Horn, John
Howell & Co., F. M.
Kalamazoo Label Co.
Kittredge & Co., R. J.
Lehmann Printing & Lithographing Co.
Mason Box Co., The
May Co., The J. L.
Milwaukee Label & Seal Co.
National Color Printing Co., Inc., The
Palm, Fechteler & Co.
Paper Affiliates Co., Inc.
Reyburn Mfg. Co., Inc., The
Robinson Tag & Label Co.
St. Louis Sticker Co.
Salisbury Mfg. Co.
E. F. Schmidt Co.
Shuman Co., The Frank G.
Tablet & Ticket Co., The
Tompkins' Label Service
Unique Printed Products Co., Inc.
Wheeler-Van Label Co.
Wurzburg Bros.

LABELS, METALLIC

American Can Co.
Attleboro Printing & Embossing Co.
Cameo Die & Label Co.
Ever Ready Label Corp.
Foxon Co., The
French-Bray Printing Co., The
Fuller Label & Box Co.
Grammes & Sons, Inc., L. F.
Kittredge & Co., R. J.
Krause, Inc., Richard M.
Lehmann Printing & Lithographing Co.
Mason & Sons, F. E.
May Co., The J. L.
Milwaukee Label & Seal Co.
National Color Printing Co., Inc., The
Pacific Fine Arts-Pacific Label Co.
Probar Corp.
Reyburn Mfg. Co., Inc., The
Reynolds Metals Co., Inc.
Robinson Tag & Label Co.
Rode & Brand
St. Louis Sticker Co.
Shuman Co., Frank G.
Stanley Mfg. Co., The
Tablet & Ticket Co., The
United States Printing & Lithograph Co., The, American Lithographic Division
Wurzburg Bros.
Wynekoop Co., Walker

LABELS, TRANSPARENT

Consolidated Lithographing Corp.
Dennison Mfg. Co.
Dobeckmun Co., The
Ever Ready Label Corp.
Forbes Lithograph Co., The
Foxon Co., The
French-Bray Printing Co., The
Lehmann Printing & Lithographing Co.
Mason & Sons, F. E.
Nashua Gummed & Coated Paper Co.
Palm, Fechteler & Co.
Reyburn Mfg. Co., Inc., The
Robinson Tag & Label Co.
Shellmar Products Co.
Tablet & Ticket Co.
Tompkins' Label Service

LABORATORIES, RESEARCH AND TESTING
(Closures, Liners, Wrappers, etc.)

Bridgeport Testing Laboratory, Inc.
Container Testing Laboratories, Inc.
Detroit Testing Laboratory
Little, Inc., Arthur D.
Orthmann Laboratories, Inc.
Pittsburgh Testing Laboratory

LACQUERS
(Solutions for Paper, Fabric and Wood Finishing)

Atlas Powder Co., Zapon Div., and Zapon-Brevolite Div.
Ault & Wiborg Corp.
Bakelite Corp.
Chemical Products Corp.
Commercial Solvents Corp.
du Pont de Nemours & Co., Inc., E. I.
Eastman Kodak Co.
Egyptian Lacquer Mfg. Co., The
Hercules Powder Co.
Maas & Waldstein Co.
Menasha Products Co., The
Monsanto Chemical Co., Plastics Div.
Murphy Varnish Co., Essex Varnish Division
National Adhesives Corp.
Pope & Gray, Inc.
Pyroxylin Products, Inc.
Roxalin Flexible Lacquer Co.
Sherwin-Williams Co., The
Stanley Chemical Co., The
Watson-Standard Co., The

LAMINATING, CUSTOM

American Coating Mills, Inc.
Arvey Corp., The
Cambridge Paper Box Co.
Collins Mfg. Co., A. M.
Dennison Mfg. Co.
Diana Mfg. Co.
Dobeckmun Co., The
Fischer-Partelow, Inc.
Frank Associates, Inc.
Hinkson Paper Co.
Hy-Sil Mfg. Co.
Miller, Inc., Bert C.
Milprint, Inc.
Ralston & Co., Inc., W.
Seal, Inc.
Shellmar Products Co.
Shoup-Owens, Inc.
Sweetnam, Inc., Geo. H.
Walser Mfg. Co., Inc., The
Westfield River Paper Co., Inc.

LATEX
(Normal, Concentrated, Processed)

Arabol Mfg. Co.
Dewey & Almy Chemical Co.
Heveatex Corp.
Kittredge & Co., R. J.
Union Paste Co.
U. S. Rubber Products, Inc.

LEATHER, IMITATION

Aldine Paper Co.
American Coating Mills, Inc.
Atlas Powder Co., Zapon Div., and Zapon-Brevolite Div.
Bakelite Corp. (Revolite)
Beveridge-Marvellum Co.
Bradner Smith & Co.
Chase & Co., L. C.
Dejonge & Co., Louis
du Pont de Nemours & Co., Inc., E. I.
Griffin, Campbell, Hayes, Walsh, Inc.
Hampden Glazed Paper & Card Co.

Hazen Paper Co.
Hinkson Paper Co.
Holliston Mills, Inc., The
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Keratol Co., The
Kimberly-Clark Corp.
Marvellum Co., The
Matthias Paper Corp.
National Coated Paper Corp.
Paper Affiliates Co., Inc.
Peerless Roll Leaf Co., Inc.
Permatex Fabrics Co.
Premoid Co.
Pyrotex Leather Co.
Revolite Corp.
Riegel Paper Corp.
Standard Textile Products Co.
Textileather Corp.
United Cotton Products Co.
United Mfg. Co.
U. S. Rubber Products, Inc.
Walther & Co., Inc.
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

LINERS
(Box, Barrel and Bag)

Angier Corp.
Arkell Safety Bag Co.
Bemis Bros. Bag Co.
Bradner Smith & Co.
Consolidated Paper Co.
Container Corp. of America
Continental Color Corp.
Eddy Paper Corp., The
Edgewater Paper Co.
Equitable Paper Bag Co., Inc.
Fort Orange Paper Co.
Gair Co., Inc., Robert
Gardner-Richardson Co., The
Hamersley Mfg. Co., The
Hinde & Dauch Paper Co.
International Paper Products Corp.
Kalamazoo Vegetable Parchment Co.
Kennedy Car Liner & Bag Co.
Kieckhefer Container Co.
Kimberly-Clark Corp.
Matthias Paper Corp.
Owens-Illinois Pacific Coast Co.
Paper Service Co., The
Paterson Parchment Paper Co.
Pioneer Paper Stock Co.
Rexford Paper Co.
Reynolds Metals Co., Inc.
Rhinelander Paper Co.
Riegel Paper Corp.
Rockford Fibre Container Co.
Safepack Mills
Sweetnam, Inc., Geo. H.
Traver Corp.
Union Bag & Paper Corp.
Westfield River Paper Co., Inc.

LINERS, CAP

Aluminum Co. of America
Anchor Cap & Closure Corp.
Armstrong Cork Co., Closure Division
Dewey & Almy Chemical Co.
General Felt Products, Inc.
Gutmann & Co., Ferdinand
Mundet Cork Corp.
Owens-Illinois Glass Co.
Phoenix Metal Cap Co.
Reynolds Metals Co., Inc.

LITHOGRAPHERS

American Colortype Co.
American Label Co.
American Lithographic Division of The United States Printing & Lithograph Co.
Art Gravure Corp.
Arvey Corp., The
Atlantic Litho. & Ptg. Division of The United States Printing & Lithograph Co.
Blum, Emery
Brett Litho. Co.
Brooks Bank Note Co.
Brooks & Porter, Inc.
Brown & Bigelow, Inc.
Burt Co., Inc., F. N.
Calvert Litho. Co.
Cambridge Paper Box Co.
Consolidated Lithographing Corp.
Dennison Mfg. Co.
Diamond Press, Inc., Display-Rite Division
Donaldson Litho. Division of The United States Printing & Lithograph Co.
Edwards & Deutsch Litho. Co.
Einson-Freeman Co., Inc.
Erie Litho. & Printing Division of The U. S. Printing & Lithograph Co.
Fairchild Corp., E. E.
Federal Litho. Co.
Fitzhugh, Inc., Wm. W.
Forbes Lithograph Co., The
Genesee Valley Litho. Co.
Goes Litho. Co.
Gugler Litho. Co.
Haass Litho. Co., Inc.
Heywood Co., Inc., R. R.
Kaumagraph Co.
Ketterlinus Litho. Mfg. Co.
Kindred, MacLean & Co., Inc.
Latham Lithographic Corp.
Lebanon Paper Box Co., Inc.
Lord Baltimore Press
McCandlish Litho. Corp.
Magill-Weinsheimer Co.
Meyercord Co.
Michaelson Lithograph Co.
Michigan Litho. Co.
Milprint, Inc.
Nalco, Inc.
National Color Printing Co., Inc., The
National Folding Box Co.
National Printing & Engraving Co.
National Process Co., Inc., The
Niagara Lithograph Co.
Northwestern Litho. Co.
Oberly & Newell Litho. Corp.
Offset Gravure Corp.
Palmer Advertising Service Division of The United States Printing & Lithograph Co.
Pictorial Paper Package Corp.
Polygraphic Co. of America, Inc.
Powers Division, W. F., of The United States Printing & Lithograph Co.
Quad-Color, Inc.
Regensteiner Corp.
Reynolds & Reynolds Co.
Rochester Folding Box Co.
Rode & Brand
Rossotti Lithographing Co., Inc.
Sale Litho. Co.
Schmidt Co., E. F.
Schmidt Litho. Co.
Schmidt Lithographing, Theo. A., Division of the United States Printing & Lithograph Co.
Schmitt & Co., Inc., Geo.
Schultz & Co., H. J.
Snyder & Black, Inc.
Standard Printing Co.
Stecher-Traung Lithograph Corp.
Stensgaard & Associates, W. L.
Strobridge Litho. Co.
Stubbs Corp.
Trautmann, Bailey & Blampey
United States Printing & Litho. Co., The
Waddill Printing & Litho. Co.
Walker Litho. Co.
Weil Sons Litho. Co., David
Wilmanns Bros. Co.
Wurzburg Bros.
Zipprodt, Inc.

LITHOGRAPHERS, METAL

Aluminum Co. of America
American Can Co.
Anchor Cap & Closure Corp.
Burdick & Son, Inc.
Clark Co., Inc., Geo. V.
Clark Mfg. Co., J. L.
Grammes & Sons, Inc., L. F.
Heekin Can Co.
National Can Corp.
Owens-Illinois Can Co.
Owens-Illinois Glass Co.
Phoenix Metal Cap Co.
Robertson Steel & Iron Co., W. F.
Wheeling Corrugating Co., Steel Container Div.
White Cap Co.

MACHINES, AUTOMATIC PRINTING

Amsco Packaging Machinery, Inc.
Chambon Corp.
Haida Engineering Co.
Henschel Mfg. Co., C. B.
Hudson-Sharp Machine Co.
Klingrose Mach. Corp.
L. C. Machinery Co., Inc.
Marconetti Inc., A. E.
Meisel Press Mfg. Co.
Package Machinery Co.
Potdevin Machine Co.
Printcote Co., The
Smithe Machine Co., Inc., F. L.
Stokes & Smith Co.
U. P. M. Kidder Press Co.
Waldron Corp., John
Weiss, A.

MACHINES, AUTOMATIC WEIGHING, DRY FILLING
(Gross and Net Weight—Volumetric)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Automatic Scale Co., Inc.
Brown Bag Filling Machine Co.
Consolidated Packaging Machinery Corp.
Ferguson Co., J. L.
Frank Machine Works, Julius
Goat Co., Inc., The Fred
Gump Co., B. F.
Johnson Automatic Sealer Co., Ltd.
Modern Machine Shop, The
National Packaging Machinery Co.
Pneumatic Scale Corp., Ltd.
Redington Co., F. B.
Richardson Scale Co.
Rose Bros. (Gainsborough), Ltd.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Syntron Company
Toledo Scale Co.
Triangle Package Machinery Co.
United States Automatic Box Machinery Co., Inc.
Weigh Right Automatic Scale Co.

MACHINES, BAG
(Metal Tie)

Potdevin Machine Co.

MACHINES, BAG FILLING AND SEALING

Acme Staple Co.
American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Automatic Packaging Corp.
Automatic Scale Co. Inc.
Bagpak, Inc.
Bemis Bros. Bag Co. (sealing)
Betner Co., Benj. C.
Bostitch, Inc.
Brown Bag Filling Machine Co., The
Consolidated Packaging Machinery Corp.
Container Equipment Corp.
Dexter Folder Co.

XUM

Ferguson Co., J. L.
Frank Machine Works, Julius
Goat Co., Inc., The Fred
Gump Co., B. F.
Ideal Stitcher & Mfg. Co.
International Paper Products Corp.
Ivers-Lee Co., The
Miller Wrapping & Sealing Machine Co.
Modern Machine Shop, The
National Packaging Machinery Co.
Package Machinery Co.
Peters Machinery Co.
Pneumatic Scale Corp., Ltd.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Royal & Co., Thomas M. (Sealing)
Saranac Machine Co.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Syntron Company
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, BAG FLOUR PACKING AND WEIGHING

Arenco Machine Co., Inc.
Consolidated Packaging Machinery Corp.
Ferguson Co., J. L.
Gump Co., B. F.
Pneumatic Scale Corp., Ltd.
Richardson Scale Co.
Stokes & Smith Co.
Triangle Package Machinery Co.

MACHINES, BAG MAKING

(Cellulose Envelope, Satchel Bottom, Window Patching, Paper, etc.)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Container Equipment Corp.
Goat Machine Co., Inc., The Fred
Haida Engineering Co.
Henschel Mfg. Co., C. B.
Hudson-Sharp Machine Co.
International Paper Box Machine Co.
L. C. Machinery Co., Inc.
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
Package Machinery Co.
Parrish, Asa L.
Peters Machinery Co.
Pneumatic Scale Corp. Ltd.
Potdevin Machine Co.
Rose Bros. (Gainsborough), Ltd.
Smith & Winchester Mfg. Co.
Smithe Machine Co., Inc., F. L.
Staude Mfg. Co., E. G.
Stokes & Smith Co.
U. S. Automatic Box Machinery Co., Inc.
Waldron Corp., John
Weber & Co., H. G.
Wrap-Ade Machine Co., Inc. (Cellulose Envelope)

MACHINES, BAG SEWING

Consolidated Packaging Machinery Corp.

MACHINES, BANDING

Amsco Packaging Machinery, Inc.

MACHINES, BANDING CIGAR

Colton Co., Arthur
Consolidated Lithographing Corp.
International Cigar Machinery Co.
Miller Wrapping & Sealing Machine Co.
New Jersey Machine Corp.

MACHINES, BOTTLE CAPPING AND SEALING

Aluminum Seal Co.
American Seal-Kap Corp.
Anchor Cap & Closure Corp.
Consolidated Packaging Machinery Corp.
Crown Cork & Seal Co., Inc.
Elgin Mfg. Co.
Filler Machine Co., Inc., The
Haskins Co., R. G.
Horix Manufacturing Co.
Kiefer Machine Co., The Karl
Liquid Carbonic Corp., The
National Packaging Machinery Co.
Owens-Illinois Glass Co.
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Scientific Filter Co.
Stokes & Smith Co.
U. S. Automatic Box Machinery Co., Inc.
U. S. Bottlers Machinery Co.
White Cap Co.
Williams Sealing Corp.

MACHINES, BOTTLE CLEANING

(Compressed Air)

Filler Machine Co., Inc., The
Kiefer Machine Co., The Karl
Pneumatic Scale Corp., Ltd.
U. S. Bottlers Machinery Co.

MACHINES, BOTTLE CLEANING

(Vacuum)

Kiefer Machine Co., Karl
Pneumatic Scale Corp., Ltd.
U. S. Bottlers Machinery Co.

MACHINES, BOTTLE CORKING

Ermold Co., Edward
Horix Mfg. Co.
Kiefer Machine Co., The Karl
Pneumatic Scale Corp., Ltd.
U. S. Bottlers Machinery Co.

MACHINES, BOTTLE FILLING

(Automatic and Semi-Automatic)

Arenco Machine Co., Inc.
Colton Co., Arthur
Crown Cork & Seal Co., Inc.
Elgin Mfg. Co.
Ferguson Co., J. L.
Filler Machine Co., Inc., The
Horix Mfg. Co.
Ivers-Lee Co.
Kiefer Machine Co., The Karl
Liquid Carbonic Corp.
Pneumatic Scale Corp., Ltd.
Richardson Scale Co.
Scientific Filter Co.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Toledo Precision Devices, Inc.
Toledo Scale Co.
Triangle Package Machinery Co.
U. S. Bottlers Machinery Co.
Vol-U-Meter Co., Inc., The

MACHINES, BOTTLE FILLING

(Automatic and Semi-Automatic for Dry Products)

Amsco Packaging Machinery, Inc. (semi-automatic)
Automatic Scale Co., Inc.
Colton Co., Arthur
Consolidated Packaging Machinery Corp.
Ferguson Co., J. L.
Gump Co., B. F.
Modern Machine Shop, The
National Packaging Machinery Co.
Pneumatic Scale Corp., Ltd.
Richardson Scale Co.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Syntron Company
Triangle Package Machinery Co.
United States Automatic Box Machinery Co., Inc.

MACHINES, BOTTLE WASHING

(Soaking and Rinsing)

Elgin Mfg. Co.
Horix Mfg. Co.
Kiefer Machine Co., The Karl
Liquid Carbonic Corp., The
Pneumatic Scale Corp., Ltd.
Stokes Machine Co., F. J.
U. S. Bottlers Machinery Co.
Yundt Co., Michael

MACHINES, BOX COLLAPSING

International Paper Box Machine Co.
Meisel Press Mfg. Co.
National Packaging Machinery Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, BOX FOLDING, GLUING, STITCHING

Acme Staple Co.
Bostitch, Inc.
Chambon Corp.
Container Equipment Corp.
Dexter Folder Co.
Ferguson Co., J. L.
Heller Co., The
Ideal Stitcher & Mfg. Co.
International Paper Box Machine Co.
Knowlton Co., M. D.
Miller Wrapping & Sealing Machine Co.
National Metal Edge Box Co.
National Packaging Machinery Co.
New Jersey Machine Corp.
Pneumatic Scale Corp. (Box Folding & Gluing)
Rose Bros. (Gainsborough), Ltd.
Saranac Machine Co.
Staude Mfg. Co., E. G.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co.

MACHINES, BOX PACKING

American Machine & Foundry Co.
Burt Machine Co.
Container Equipment Corp.
Ferguson Co., J. L.
Gump Co., B. F.
Modern Machine Shop, The
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Standard-Knapp Corp.
Stokes & Smith Co.

MACHINES, BOX REINFORCEMENT

(Band and Wire Strapping)

Acme Steel Co.
Gerrard Co., Inc., The
Knowlton Co., M. D.
National Metal Edge Box Co.
New Jersey Machine Corp.
Signode Steel Strapping Co.
Stanley Works, The, Steel Strapping Div.
Tennant & Sons Co., C.

MACHINES, BOX STRAPPING

See Box Strapping

MACHINES, BOX WINDOW

Chambon Corp.
International Paper Box Machine Co.
L. C. Machinery Co., Inc.
New Jersey Machine Corp.
Smithe Machine Co., Inc., F. L.
Staude Mfg. Co., E. G.

XUM

MACHINES, BOXBOARD PRINTING

Arenco Machine Co., Inc.
Beck Machine Co., Charles
Chambon Corp.
Continental Color Corp.
Haida Engineering Co.
Hooper Co., F. X.
Hudson-Sharp Machine Co.
International Paper Box Machine Co.
Klingrose Machine Corp.
Knowlton Co., M. D.
Langston Co., Samuel M.
L. C. Machinery Co., Inc.
Markem Machine Co.
Meisel Press Mfg. Co.
New Jersey Machine Corp.
Potdevin Machine Co.
Printcote Co., Inc., The
Standard-Knapp Corp.
Staude Mfg. Co., E. G.
Thomson National Press Co.
U. P. M. Kidder Press Co.

MACHINES, BRONZING

Christensen Machine Co.
Henschel Mfg. Co., C. B.
Meisel Press Mfg. Co.
Pauli Corp., Karl
Rutherford Machinery Co., Div. General Printing Ink Corp.
U. P. M. Kidder Press Co.

MACHINES, BUNDLE TYING (String)

Acme Steel Co.
Amsco Packaging Machinery, Inc. (Paper)
Bunn Co., B. H.
Goat Co., Inc., Fred F.
International Paper Box Machine Co.
National Bundle Tyer Co.
Package Machinery Co.
Potdevin Machine Co.

MACHINES, BUNDLE TYING (Wire Strapping)

Acme Steel Co.
Gerrard Co., Inc.
Signode Steel Strapping Co.
Stanley Works, The Steel Strapping Div.
Tennant & Sons Co., C.

MACHINES, CAN CAPPING

Anchor Cap & Closure Corp.
Consolidated Packaging Machinery Corp.
Continental Can Co., Inc.
Crown Cork & Seal Co., Inc.
Elgin Mfg. Co.
Ferguson Co., J. L.
Filler Machine Co., Inc.
Haskins Co., R. G.
Heekin Can Co., The
Kiefer Machine Co., The Karl
Knowlton Co., M. D.
National Can Corp.
National Packaging Machinery Co.
Phoenix Metal Cap Co.
Pneumatic Scale Corp., Ltd.
Scientific Filter Co.
Stokes Machine Co., F. J.
U. S. Automatic Box Machinery Co., Inc.
U. S. Bottlers Machinery Co.
Williams Sealing Corp.

MACHINES, CAN CLOSING AND SEALING

American Can Co.
Consolidated Packaging Machinery Corp.
Continental Can Co., Inc.
Dewey & Almy Chemical Co.
Elgin Mfg. Co.
Ferguson Co., J. L.
Gates Paper Co., Ltd.
Heekin Can Co., The
Kiefer Machine Co., The Karl
Knowlton Co., M. D.
National Can Corp.
Pneumatic Scale Corp., Ltd.
R. C. Can Co.
U. S. Bottlers Machinery Co.
Williams Sealing Corp.

MACHINES, CAN FILLING

American Can Co.
Amsco Packaging Machinery, Inc.
Automatic Scale Co., Inc.
Bostitch, Inc.
Brown Bag Filling Machine Co.
Colton Co., Arthur
Consolidated Packaging Mach. Corp.
Continental Can Co., Inc.
Elgin Mfg. Co.
Ferguson Co., J. L.
Filler Machine Co., Inc., The
Gump Co., B. F.
Heekin Can Co., The
Horix Manufacturing Co.
Kiefer Machine Co., The Karl
Modern Machine Shop, The
National Packaging Machinery Co.
Pneumatic Scale Corp., Ltd.
Rose Bros. (Gainsborough), Ltd.
Scientific Filter Co.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Toledo Scale Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.
U. S. Bottlers Machinery Co.
Vol-U-Meter Co., Inc.

MACHINES, CAN LABELING

Ferguson Co., J. L.
Standard-Knapp Corp.

MACHINES, CAN LINING

Ams Machine Co., Max
Cameron Can Machinery Co.
Dewey & Almy Chemical Co.

MACHINES, CAP & COVER LINING

Dewey & Almy Chemical Co.

MACHINES, CAPSULE, FILLING & CAPPING

Colton Co., Arthur
Stokes Machine Co., F. J.

MACHINES, CAPSULE WRAPPING

Ivers-Lee Co., The
Modern Machine Shop, The
Stokes & Smith Co.

MACHINES, CARTON, AND PAPER BOXMAKING

Acme Staple Co.
American Machine & Foundry Co.
Atlantic Carton Corp.
Beck Machine Co., Chas.
Bostitch, Inc.
Chambon Corp.
Dexter Folder Co.
Ferguson Co., J. L.
Goat Co., Inc., The Fred
Ideal Stitcher & Mfg. Co.
Inman Manufacturing Co.
International Paper Box Machine Co.
Knowlton Co., M. D.
L. C. Machinery Co., Inc.
Meisel Press Mfg. Co.
National Metal Edge Box Co.
National Packaging Machinery Co.
New Jersey Machine Corp.
Package Machinery Co.
Peters Machinery Co.
Pneumatic Scale Corp., Ltd.
Rose Bros. (Gainsborough), Ltd.
Saranac Machine Co.
Self-Locking Carton Co.
Staude Manufacturing Co., E. G.
Stokes & Smith Co.
U. S. Automatic Box Machinery Co.

MACHINES, CARTON FORMING, LINING, FILLING, FOLDING, CLOSING

American Machine & Foundry Co.
Automat Molding & Folding Co.
Automatic Scale Co. (Filling)
Bostitch, Inc.
Consolidated Packaging Machinery Corp.
Container Equipment Corp.
Continental Color Corp.
Ferguson Co., J. L.
Goat Co., Inc., The Fred
International Paper Box Machine Co.
Johnson Automatic Sealer Co., Ltd.
Knowlton Co., M. D.
Morris Packaging Equipment Co.
National Folding Box Co.
National Metal Edge Box Co.
National Packaging Machinery Co.
Peters Machinery Co.
Pneumatic Scale Corp.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, CARTON LOADING

American Machine & Foundry Co.
Automat Molding & Folding Co., The
Container Equipment Corp.
Ferguson Co., J. L.
Frazier & Son
Goat Co., Inc., The Fred
Jones & Co., Inc., R. A.
Morris Packaging Equipment Co.
National Packaging Machinery Co.
Peters Machinery Co.
Pneumatic Scale Corp., Ltd.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Standard-Knapp Corp.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, CARTON PARAFFINING

Hudson-Sharp Machine Co.
International Paper Box Machine Co.
Knowlton Co., M. D.
L. C. Machinery Co., Inc.
Potdevin Machine Co.
Rose Bros. (Gainsborough), Ltd.

MACHINES, CASE SEALING

Burt Machine Co.
Ferguson Co., J. L.
Heekin Can Co., The
Knowlton Co., M. D.
Standard-Knapp Corp.

MACHINES, CELLULOSE TUBE MAKING

Amsco Packaging Machinery, Inc.
Ivers-Lee Co., The

XUM

Knowlton Co., M. D.
Potdevin Machine Co.
See-Thru Container Corp.
Stokes & Smith Co.
Wrap-Ade Machine Co., Inc.

MACHINES, COATING
(Lacquer and Varnish)

Cameron Machine Co.
Chambers Bros. Co.
Chambon Corp.
Colton Co., Arthur
Container Equipment Corp.
Haida Engineering Co.
Klingrose Machine Corp.
Knowlton Co., M. D.
L. C. Machinery Co., Inc.
Miller, Inc., Bert C.
New Jersey Machine Corp.
Potdevin Machine Co.
Printcote Co., Inc., The
Saranac Machine Co.
Stanley Chemical Co.
Wagner Litho. Machinery Co., Charles
Waldron Corp., John

MACHINES, COLLAPSIBLE TUBE FILLING AND SEALING

Arenco Machine Co., Inc.
Colton Co., Arthur
Kiefer Machine Co., The Karl
Peerless Tube Co.
Standard Specialty & Tube Co.
Stokes Machine Co., F. J.
Wirz, Inc., A. H.

MACHINES, CONTAINER SEALING
(Gummed Tape)

Arenco Machine Co., Inc.
Better Packages, Inc.
Container Equipment Corp.
Diagraph-Bradley Stencil Machine Corp.
Ever Ready Label Corp.
Gummed Products Co., The
Gummed Tape & Devices Co.
Gump Co., B. F.
Knowlton Co., M. D.
Link & Co., Inc., L.
Metal Specialties Co.
Nashua Gummed & Coated Paper Co.
Peters Machinery Co.
Potdevin Machine Co.
Rose Bros. (Gainsborough), Ltd.
Weigh Right Automatic Scale Co.

MACHINES, CONTAINER SEALING
(Staples and Wire)

Acme Staple Co.
Bostitch, Inc.
Dexter Folder Co.
Heller Co., The
Ideal Stitcher & Mfg. Co.
Morrison Co., J. L.
Saranac Machine Co.

MACHINES, COUNTING

Amsco Packaging Machinery, Inc.
Container Equipment Corp.
Ivers-Lee Co., The
Redington Co., F. B.
Richardson Scale Co.
Stokes Machine Co., F. J.
Toledo Precision Devices, Inc.
Toledo Scale Co.
Veeder-Root Co.

MACHINES, CREPING

Hudson-Sharp Machine Co.
Waldron Corp., John

MACHINES, CRIMPING AND SEALING
(Transparent Cellulose)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Container Equipment Corp.
Frank Machine Works, Julius
Gruenberg Electric Co.
Heat-Seal-It Co.
Knowlton Co., M. D.
Miller Wrapping & Sealing Machine Co.
Simplex Wrapping Machine Co.
Stokes & Smith Co.
Wrap-Ade Machine Co., Inc.

MACHINES, DOMING
(Boxes)

Knowlton Co., M. D.
New Jersey Machine Corp.

MACHINES, EMBOSSING

Barnard Mfg. Co., Paul J.
Dornbusch Agency, Inc., The
Griffin, Campbell, Hayes, Walsh, Inc.
Hudson-Sharp Machine Co.
Klingrose Machine Corp.
Knowlton Co., M. D.
Marconetti, Inc., A. E.
Markem Machine Co.
New Jersey Machine Corp.
Peerless Roll Leaf Co., Inc.
Perkins & Son, Inc., B. F.
Potdevin Machine Co.
Printcote Co., Inc., The
Rutherford Machinery Co.
Thomson National Press Co.
Waldron Corp., John
Wood, Nathan & Virkus Co., Inc.

MACHINES, ENVELOPE MAKING

Amsco Packaging Machinery, Inc.
International Paper Box Machine Co.
Ivers-Lee Co., The
Modern Machine Shop, The
Smithe Machine Co., Inc., F. L.
Staude Mfg. Co., E. G.
Transparent Wrap Machine Corp.
U. P. M. Kidder Press Co.
Wrap-Ade Machine Co., Inc.

MACHINES, FIBRE CAN FILLING, SEALING AND CLOSING

American Can Company
American Machine & Foundry Co.
Automatic Scale Co. (Filling)
Bostitch, Inc.
Consolidated Packaging Machinery Corp.
Ferguson Co., J. L.
Gump Co., B. F.
Horix Mfg. Co.
Knowlton Co., M. D.
Lily Tulip Cup Corp.
National Packaging Machinery Co.
New Jersey Machine Corp.
Pneumatic Scale Corp., Ltd.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, FIBRE CAN MAKING

American Can Co.
Ferguson Co., J. L.
Hudson-Sharp Machine Co.
Knowlton Co., M. D.
Langston Co., Samuel M.
L. C. Machinery Co., Inc.
New Jersey Machine Corp.
Staude Mfg. Co., E. G.

MACHINES, FILLERS, VISCOSE

Food Machinery Corp., Sprague-Sells Div.

MACHINES, FOLDING

Dexter Folder Co.
Gump Co., B. F.
Hudson Sharp Machine Co.

MACHINES, GLUING
(For Label, Wraps, etc.)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Burt Machine Co.
Economic Machinery Co.
Ever Ready Label Corp.
Ferguson Co., J. L.
Grammes & Sons, Inc., L. F.
Haida Engineering Co.
Knowlton Co., M. D.
Liquid Carbonic Corp., The
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
New Jersey Machine Corp.
Pneumatic Scale Corp., Ltd.
Potdevin Machine Co.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Scientific Filter Co.
Staude Mfg. Co., E. G.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.
U. S. Bottlers Machinery Co.
Weigh Right Automatic Scale Co.

MACHINES, GRANULATING

Amsco Packaging Machinery, Inc.
Colton Co., Arthur
Gump Co., B. F.
Stokes Machine Co., F. J.

MACHINES, GUMMED TAPE MOISTENING

Better Packages, Inc.
Bradner Smith & Co.
Chippewa Paper Products Corp.
Container Equipment Corp.
Diagraph-Bradley Stencil Machine Corp.
Edgewater Paper Co.
Ever Ready Label Corp.
Gummed Products Co., The
Gummed Tape & Devices Co.
Knowlton Co., M. D.
Link & Company, Inc., L.
McLaurin-Jones Co.
Metal Specialties Co.
Mid-States Gummed Paper Co.
Nashua Gummed & Coated Paper Co.
Nashua Package Sealing Co., Inc.
Seymour Products Co., The

MACHINES, HEAT SEALING
(Transparent Cellulose)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Container Equipment Corp.
Ferguson Co., J. L.
Frank Machine Works, Julius
Hayssen Mfg. Co.
Heat-Seal-It Co.
Ivers-Lee Co., The
Johnson Automatic Sealer Co., Ltd.
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
New Jersey Machine Corp.
Package Machinery Co.
Potdevin Machine Co.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Seal, Inc.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Sylvania Industrial Corp.

U. S. Automatic Box Machinery Co., Inc.
Waldron Corp., John
Wrap-Ade Machine Co., Inc.

MACHINES, LABELING

Acme Staple Co.
American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Better Packages, Inc.
Burt Machine Co.
Container Equipment Corp.
Economic Machinery Co.
Ermold Co., Edward
Ever Ready Label Corp.
Ferguson Co., J. L.
Haida Engineering Co.
Knowlton Co., M. D.
Liquid Carbonic Corp., The
New Jersey Machine Corp. (Round Can)
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Potdevin Machine Co.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Rutherford Machinery Co.
Scientific Filter Co.
Standard-Knapp Corp.
Staude Mfg. Co., E. G.
Stokes & Smith Co.
U. S. Bottlers Machinery Co.

MACHINES, LAMINATING (Cellulose)

Cameron Machine Co.
Chambon Corp.
Haida Engineering Co.
Hudson-Sharp Machine Co.
Klingrose Machine Corp.
Knowlton Co., M. D.
L. C. Machinery Co., Inc.
Meisel Press Mfg. Co.
Miller, Inc., Bert C.
New Jersey Machine Corp.
Potdevin Machine Co.
Printcote Co., Inc., The
Seal, Inc.
Waldron Corp., John

MACHINES, LIQUID FILLING

Alsop Engineering Corp.
Colton Co., Arthur
Crandall Can Filler Machine Co.
Crown Cork & Seal Co., Inc.
Elgin Mfg. Co.
Ertel Engineering Corp.
Ferguson Co., J. L.
Filler Machine Co., Inc.
Horix Mfg. Co.
Kiefer Machine Co., The Karl
Liquid Carbonic Corp., The
Pneumatic Scale Corp., Ltd.
Richardson Scale Co.
Scientific Filter Co.
Stokes Machine Co., F. J.
Toledo Precision Devices, Inc.
U. S. Bottlers Machinery Co.
Vol-U-Meter Co., Inc.

MACHINES, METAL CAN MAKING

Ams Machine Co., Max
Bliss Co., E. W.
Cameron Can Machinery Co.
Colton Co., Arthur

MACHINES, METAL EDGE STAYING (For Boxes and Cartons)

National Metal Edge Box Co.

MACHINES, MILK BOTTLE HOODING

Aluminum Seal Co.
American Seal-Kap Corp.
L. C. Machinery Co., Inc.
Package Machinery Co.

MACHINES, MILK BOTTLE SEALING-METAL CLOSURES

Crown Cork & Seal Co., Inc.

MACHINES, NUMBERING

American Numbering Machine Co.
American Perforater Co.
Bates Mfg. Co., The
Ferguson Co., J. L.
Force & Co., Inc., Wm. A.
Meisel Press Mfg. Co.
Miller Wrapping & Sealing Machine Co.
New Jersey Machine Corp.
Roberts Numbering Mach. Co.

MACHINES, PACKET FILLING

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Automatic Scale Co., Inc.
Bostitch, Inc.
Brown Bag Filling Machine Co., The
Consolidated Packaging Machinery Corp.
Ferguson Co., J. L.
Frank Machine Works, Julius
Goat Co., Inc., The Fred
Gump Co., B. F.
Ivers-Lee Co.
Modern Machine Shop, The
National Packaging Machinery Co.
Pneumatic Scale Corp., Ltd.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Toledo Precision Devices, Inc.
Toledo Scale Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.
Weigh Right Automatic Scale Co.
Wright's Automatic Packaging Machine Co.

MACHINES, PARTITION ASSEMBLING

Standard-Knapp Corp.

MACHINES, PREFORMING AND TABLETTING

Colton Co., Arthur
Stokes Machine Co., F. J.

MACHINES, RAISED PRINTING

Barnard Mfg. Co., Paul J.
Meisel Press Mfg. Co.
Wood, Nathan & Virkus Co., Inc.

MACHINES, REVENUE STAMP

Arenco Machine Co., Inc.
Meisel Press Mfg. Co.
New Jersey Machine Corp.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.

MACHINES, ROLL LEAF STAMPING

Peerless Roll Leaf Co., Inc.

MACHINES, ROLL SHEETING (Cellulose)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Beck Machine Co., Chas.
Dexter Folder Co.
Everett Machine Corp.
Ivers-Lee Co., The
Knowlton Co., M. D.
Marconetti, Inc., A. E.
Meisel Press Mfg. Co.
Miller Wrapping & Sealing Machine Co.
Peters Machinery Co.
Potdevin Machine Co.
Rose Bros. (Gainsborough), Ltd.
Saranac Machine Co.
Wrap-Ade Machine Co., Inc.

MACHINES, ROLL SLITTERS AND REWINDERS

Amsco Packaging Machinery, Inc.
Beck Machine Co., Chas.
Beloit Iron Works
Cameron Machine Co.
Chambon Corp.
Hudson-Sharp Machine Co.
Inman Mfg. Co.
Klingrose Machine Corp.
Knowlton Co., M. D.
Krause, Inc., Richard M.
Langston Co., Samuel M.
L. C. Machinery Co., Inc.
Meisel Press Mfg. Co.
Potdevin Machine Co.
Printcote Co., Inc., The
Staude Mfg. Co., E. G.
U. P. M. Kidder Press Co.
Waldron Corp., John

MACHINES, ROLL WRAPPING

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Automat Molding & Folding Co.
Hudson-Sharp Machine Co.
Knowlton Co., M. D.
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
Package Machinery Co.
Peters Machinery Co.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Terkelsen Machine Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, SEMI-LIQUID FILLING

American Machine & Foundry Co.
Colton Co., Arthur
Elgin Manufacturing Co.
Ferguson Co., J. L.
Filler Machine Co., Inc., The
Horix Mfg. Co.
Kiefer Machine Co., The Karl
Pneumatic Scale Corp., Ltd.
Scientific Filter Co.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Toledo Precision Devices, Inc.
Toledo Scale Co.
U. S. Bottlers Machinery Co.

MACHINES, SPECIAL PACKAGING PRODUCTION

Advertisers Engraving Co.
American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Cartoning Machinery Corp.
Colton Co., Arthur
Consolidated Packaging Machinery Corp.
Container Equipment Corp.
Dexter Folder Co.
Ferguson Co., J. L.
Filler Machine Co., Inc.
Frank Machine Works, Julius

XUM

General Food Package Equipment Corp.
Goat Co., Inc., Fred F.
Hudson-Sharp Machine Co.
Johnson Automatic Sealer Co., Ltd.
Knowlton Co., M. D.
Meisel Press Mfg. Co.
National Metal Edge Box Co.
New Jersey Machine Corp.
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Printcote Co., The
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Saranac Automatic Machine Corp.
Smithe Machine Co., Inc., F. L.
Special Production Machines, Inc. (Div. Pneumatic Scale Corp., Ltd.)
Standard-Knapp Corp.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. P. M. Kidder Press Co.
U. S. Automatic Box Machinery Co.
U. S. Bottlers Machinery Co.
Waldron Corp., John

MACHINES, STATIC ELIMINATOR

Potdevin Machine Co.
Simco Corp., The

MACHINES, TABLET, COUNTING, FILLING, PACKAGING

Amsco Packaging Machinery, Inc.
Colton Co., Arthur
Ivers-Lee Co., The
Modern Machine Shop, The
National Packaging Machinery Co.
New Jersey Machine Corp.
Package Machinery Co.
Redington Co., F. B.
Stokes Machine Co., F. J.
Stokes & Smith Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, TABLET MAKING

Colton Co., Arthur
Stokes Machine Co., F. J.

MACHINES, TABLET WRAPPING

American Machine & Foundry Co.
Colton Co., Arthur
Ivers-Lee Co., The
Modern Machine Shop, The
National Packaging Machinery Co.
New Jersey Machine Corp.
Package Machinery Co.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Stokes & Smith Co.
U. S. Automatic Box Machinery Co., Inc.

MACHINES, TEA BALL AND TEA BAG, AUTOMATIC

Automatic Scale Co.
Consolidated Packaging Machinery Corp.
Pneumatic Scale Corp., Ltd.

MACHINES, TIGHT WRAPPING

(For Carton Shells)

American Machine & Foundry Co.
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Rose Bros. (Gainsborough), Ltd.
Stokes & Smith Co.

MACHINES, TRANSMISSION

(Variable Speed)

Allis-Chalmers Mfg. Co.
American Engineering Co.
Gump Co., B. F.
Haida Engineering Co.
Hudson-Sharp Machine Co.
Lewellen Mfg. Co.
Link Belt Co.
New Departure Mfg. Co.
Reeves Pulley Co.
Sterling Electric Motors, Inc.

MACHINES, TUBE CUTTERS

(For Fibre Tubes or Cans)

Amsco Packaging Machinery, Inc.
Beck Machine Co., Chas.
Cameron Machine Co.
Ferguson Co., J. L.
Hudson-Sharp Machine Co.
Knowlton Co., M. D.

MACHINES, WAXING

Chambon Corp.
Haida Engineering Co.
Hudson-Sharp Machine Co.
Klingrose Machine Corp.
L. C. Machinery Co., Inc.
Potdevin Machine Co.
Printcote Co., Inc., The
Rose Bros. (Gainsborough), Ltd.
Waldron Corp., John

MACHINES, WEIGHING

(Automatic, Net and Gross Weighers)

See Scales

MACHINES, WIRE STAPLING

Acme Staple Co.
Acme Steel Co.
Bostitch, Inc.
Bates Mfg. Co., The
Crofoot Co., J. B.
Dexter Folder Co.
Diagraph-Bradley Stencil Machine Corp.
Heller Co., The
Hotchkiss Sales Co.
Ideal Stitcher & Mfg. Co.
Knowlton Co., M. D.
Markwell Mfg. Co., Inc.
National Metal Edge Box Co.
Neva-Clog Products, Inc.
Paslode Co.
Saranac Machine Co.

MACHINES, WIRE STITCHING

Acme Staple Co.
Acme Steel Co.
Bostitch, Inc.
Dexter Folder Co.
Heller Co., The
Ideal Stitcher & Mfg. Co.
Knowlton Co., M. D.
Morrison Co., J. L.
National Metal Edge Box Co.
Saranac Machine Co.

MACHINES, WRAPPING

(Bottle, Jar, Can)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Burt Machine Co., (Can)
Ferguson Co., J. L.
Hudson-Sharp Machine Co.
Ivers-Lee Co., The
Miller Wrapping & Sealing Machine Co.
Package Machinery Co.
Redington Co., F. B.
Wrap-Ade Machine Co., Inc., (Semi-automatic)

MACHINES, WRAPPING

(Bread and Cake)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Baker-Perkins Co.
Battle Creek Bread Wrapping Machine Co.
Ferguson Co., J. L.
Hayssen Mfg. Co.
Hudson-Sharp Machine Co.
Ivers-Lee Co., The
Johnson Automatic Sealer Co., Ltd.
Miller Wrapping & Sealing Machine Co.
National Bread Wrapping Machine Co.
Package Machinery Co.
Rose Bros. (Gainsborough), Ltd.

MACHINES, WRAPPING

(Butter)

Amsco Packaging Machinery, Inc.
Automat Molding & Folding Co., The
Battle Creek Bread Wrapping Machine Co.
Miller Wrapping & Sealing Machine Co.
Morris Packaging Equipment Co.
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Redington Co., F. B.

MACHINES, WRAPPING

(Cigar)

Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Colton Co., Arthur
Consolidated Lithographing Corp.
International Cigar Machinery Co.
Miller Wrapping & Sealing Machine Co.
Package Machinery Co.

MACHINES, WRAPPING

(Photo-Electric Cell for Spot Register)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Battle Creek Bread Wrapping Machine Co.
Hayssen Mfg. Co.
Johnson Automatic Sealer Co., Ltd.
Miller Wrapping & Sealing Machine Co.
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Redington Co., F. B.
Stokes & Smith Co.

MACHINES, WRAPPING

(Transparent Cellulose, Glassine, Waxed Paper, etc.)

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Battle Creek Bread Wrapping Machine Co.
Container Equipment Corp.
Ferguson Co., J. L.
Hayssen Mfg. Co.
Hudson-Sharp Machine Co.
Ivers-Lee Co., The
Johnson Automatic Sealer Co., Ltd.
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
Package Machinery Co.
Peters Machinery Co.
Pneumatic Scale Corp.
Redington Co., F. B.
Rose Bros. (Gainsborough), Ltd.
Stokes & Smith Co.
U. S. Automatic Box Machinery Co., Inc.
Wrap-Ade Machine Co., Inc.

MEDICINE DISPENSERS

Anchor Cap & Closure Corp.
Colt's Patent Fire Arms Mfg. Co.
Federal Glass Co.
Federal Tool Corp.
Kimble Glass Co.
Owens-Illinois Glass Co.
Pennsylvania Glass Products Co.
Scovill Manufacturing Co.
Standard Specialty & Tube Co.
Tyer Rubber Co.

XUM

MESH FABRICS

(For Bags and Wrappings)

Arvey Corp., The
Cottonluxe Manufacturing Co.
Pyroxylin Products, Inc.

METAL INLAYS

Aluminum Co. of America
Foxon Co., The
Krause, Inc., Richard M.
Probar Corporation
Seymour Products Co.

METALS, CORROSION RESISTANT

(Stainless Steels, Nickel, Alloys, etc.)

Acme Steel Co.
Allegheny Steel Co.
Aluminum Co. of America
American Brass Co., The
American Nickeloid Co.
American Steel & Wire Co.
Carnegie-Illinois Steel Corp.
Carpenter Steel Co.
Colonial Steel Co.
Duraloy Co.
General Alloys Co.
Ingersoll Steel & Disc Co.
International Nickel Co.
Jessop & Sons, Inc., Wm.
Ludlum Steel Co.
Republic Steel Corp.

MOLDERS, CUSTOM

Accurate Molding Corp.
Ackerman Rubber & Plastic Molding Co.
Alden Products Co.
American Hard Rubber Co.
American Insulator Corp.
American Phenolic Corp.
Anchor Cap and Closure Corp.
Armstrong Cork Co., Closure Division
Associated Attleboro Mfgrs., Inc.
Atlantic Plastic & Metal Parts Co., The
Auburn Button Works, Inc.
Automatic Molded Prods. Co.
Bakelite Corp.
Bay State Molding Co.
Beaman Molded Prods. Co.
Berkander, Geo. F.
Boonton Molding Co.
Breeze Corp.
Bridgeport Molded Prods. Inc.
Bryant Electric Co., Hemco Plastics Division
Butterfield, Inc., T. F.
Carbide & Carbon Chemicals Corp.
Celluloid Corp.
Chicago Die Mold Mfg. Co.
Chicago Molded Products Corp.
Cincinnati Molding Co.
Climax Mfg. & Molding Corp.
Colt's Patent Fire Arms Mfg. Co.
Compo-site, Inc.
Consolidated Molded Products Corp.
Cutler-Hammer, Inc.
Davies Molding Co., Harry
Dayton Insulating Molding Co.
Detroit Molded Prods. Co.
Diemolding Corp.
Eclipse Moulded Products Co.
Economy Fuse & Mfg. Co.
Emeloid Co., Inc.
Erie Resistor Corp.
Eureka Button Co.
Firestone Tire & Rubber Co.
General Electric Co., Plastics Dept.
General Industries Co.
General Insulate Co., Inc.
General Molding Co.
General Plastics, Inc.
General Products Corp.
Gits Molding Corp.
Gorham Company, Plastics Division
Grigoleit Co.
Gulliksen Mfg. Co., W. M.
Hahn Plastic & Die Cast Corp.
Hyde, A. L.
Imperial Molded Products Corp.
Industrial Molded Prods. Co.
Insulation Mfg. Co., Inc.
Insulation Prods. Co.
International Molded Plastics, Inc.
Keeler Brass Co.
Kellogg Switchboard & Supply Co.
Kuhn & Jacobs Moulding & Tool Co.
Kurz-Kasch, Inc.
Lanfare Molded Prods.
Lapin-Kurley Kew Inc.
Leviton Mfg. Co.
Liberty Molding Works
Los Angeles Molding Co.
Mack Molding Co., Inc.
Maryland Glass Corp.
Meissner Mfg. Co.
Mico Inc.
Midwest Molding & Mfg. Co.
Mills Corp., Elmer E.
Modern Plastics Corp.
Molded Insulation Co.
Molded Plastics Inc.
Molding Corp. of America
Mundet Cork Corp.
National Lock Co.
National Plastics Inc.
Niagara Insul-Bake Specialty Co., Inc.
Northern Industrial Chemical Co.
Norton Laboratories, Inc.
Oris Mfg. Co., Inc.
O'Shei, B. F.
Owens-Illinois Glass Co.
Paulis Inc., H.
Peerless Molded Plastics Inc.
Plano Molding & Mfg. Co.
Plaskon Co., Inc.
Plastic Molding Co.
Plastic Molding Corp.
Plastic Prods. Inc.
Rathbun Molding Corp.
Recto Molded Products, Inc.
Remler Co., Ltd.
Reynolds Spring Co., Molded Plastics Division
Richardson Company
Royal Molding Co.
Seamless Rubber Co.
Shaw Insulator Co.
Siemon Co.
Specialty Insulation Co.
Standard Cap & Molding Co.
Stokes Rubber Co., Jos.
Synthetic Moulded Products, Inc.
Tech-Art Plastics Co.
Terkelsen Machine Co.
Thermo Plastics Inc.
Union Insulating Co.
Universal Molding Co.
Universal Plastics Corp.
Valley Molding Co.
Van Norman Molding Co.
Victory Molding Co.
Voges Mfg. Co.
Ward Plastic & Rubber Corp.
Waterbury Button Co., The
Watertown Mfg. Co.
Wheeling Stamping Co.
Windman Bros.

MOLDING COMPOUNDS, ACRYLIC RESINS

du Pont de Nemours & Co., Inc., E. I., Plastics Dept.
Röhm & Haas Co.

MOLDING COMPOUNDS, CAST PHENOL

Bakelite Corp.
Catalin Corp.
Marblette Corp.
Monsanto Chemical Co., Plastics Div.

MOLDING COMPOUNDS, CELLULOSE ACETATE

Bakelite Corp.
Celluloid Corp.
du Pont de Nemours & Co., E. I., Plastic Dept.
Monsanto Chemical Co., Plastics Div.
Nixon Nitration Works
Tennessee Eastman Corp.

MOLDING COMPOUNDS, METHYL METHACRYLATE

du Pont de Nemours & Co., Inc., E. I.
Resinous Products & Chemical Co.
Röhm & Haas Co.

MOLDING COMPOUNDS, PHENOL FORMALDEHYDE

Bakelite Corp.
Commercial Solvents Corp.
Durite Plastics
General Electric Co.
General Plastics, Inc.
Makalot Corp.
Reilly Tar & Chemical Corp.
Resinox Corp.

MOLDING COMPOUNDS, PHENOL FURFURAL

Durite Plastics Inc.
General Plastics, Inc.

MOLDING COMPOUNDS, STYRENE

Bakelite Corp.
U. S. Rubber Products, Inc.

MOLDING COMPOUNDS, UREA FORMALDEHYDE

Bakelite Corp.
Beetle Products Division of American Cyanamid Co.
Plaskon Co., Inc.
Resinous Products & Chemical Co.

MOLDING COMPOUNDS, VINYL ACETATE

Carbide & Carbon Chemicals Corp.
Monsanto Chemical Co., Plastics Div.

PACKAGE DESIGN CONSULTANTS

(Independent Organizations)

Advertisers Engraving Co.
Alcott, Thoner & Marsh
Allcolor Co., Inc.
Allen, Arthur S.
Arens, Egmont
Barnes & Reinecke
Berni, A.
Bryan, Goode
Cinquin, Rene
Clarke, Rene
Cole, Clarence
Cooper, R. G.
Cruze, Charles
D'Addario, Thomas
De Nina, James A.
Dreyfuss, Henry
Dryden, Helen
Epstein, Alvin
Farrell, Harry H.
Fitzhugh, Inc., Wm. W.
Frederico, Joseph B.
Furman-Gold Co., The
Grover, Frederic S.
Guild, Lurelle V. A.
Hall, Frances Cushing

XUM

Heile & Pike
Hornung, Clarence P.
Jensen, Gustav B.
Ketcham, Howard
Larison, Ruth Hooper
Lewis, Ben
Lucas, Mildred C.
Martial, Jacques
Maurer, Sascha A.
Muller, Hans
Nash, Ben, Inc.
Obeck, Ferdinand J.
Picken, Mary Brooks
Ressinger, Paul
Scheele, Edwin H.
Schmidt Co., E. F.
Sheldon, Roy
Sinel, Joseph
Switzer, George
Teague, Walter D.
Thelander, Clement
Ullman, Martin
Van Doren & Associates, Harold
Weeks, Wentworth
Welden, Archibald W.
Wheeler, Leonard A.
Wurzburg Bros.

PACKAGE WRAPS

See various Paper headings

PACKAGING, CUSTOM

Allied Products, Inc.
Toilet preparations
Arcadia Food Co.
Jelly powders, dessert powders
Arner Co.
Pills and tablets
Brown Bag Filling Machine Co.
Pills, tablets, powdered materials, nails, screws, etc., in open end envelopes
Buckeye Soda Co., The
Powder and/or granular products; either folding cartons or cans
Canada's Pride Products Co., Inc.
Cocoa and malted milk products
Comfort Mfg. Co.
Every type of package, either dry, wet, semi-solid, solid, etc.
Fergusson Laboratories
Creams, tooth pastes, etc., in collapsible tubes
Ivers-Lee Co.
Tablets, pills and capsules
Jamieson Co., C. E.
Creams, tooth paste, etc., pills, tablets and fillers of collapsible tubes
Morrison Co., The
Equipped for packing in family and institutional sizes puddings, pie-fillings and ice cream powders
Sheip Mfg. Co., Henry H.
Strong, Cobb & Co.
Pills, tablets, creams, tooth paste, etc., and fillers of collapsible tubes

PADS, ABSORBENT PACKING

Kimberly-Clark Corp.
Owens-Illinois Glass Co.
Pioneer Paper Stock Co.
Sweetnam, Inc., Geo. H.

PAILS, FIBRE

Bloomer Bros. Co.
Cleveland Container Co.
Container Corp. of America
Iowa Fibre Box Co.
Lily Tulip Cup Corp.
Marathon Paper Mills Co.
Master Package Corp.
Menasha Products Co., The
National Folding Box Co.
Sutherland Paper Co.

PAPER, ALKALI PROOF

Fitchburg Paper Co.
Goodyear Tire & Rubber Co.
Morart Paper Co., Inc.
Morart Rotophot Co., Inc.
Paterson Parchment Paper Co.
Warren Co., S. D.
Westfield River Paper Co., Inc.
Whiting Co., Inc., C. R.
Wyomissing Glazed Paper Co.

PAPER, BOX LACE

American Lace Paper Co.
Dennison Mfg. Co.
Lebanon Paper Box Co.
Matthias Paper Corp.
Milwaukee Lace Paper Co.
Sayford Co., Inc., Frank M.
U. S. Lace Paper Works
Williams & Co., Inc., Chas. W.

PAPER, CHEVIOT

Bradner Smith & Co.
Datz & Son, A. S.
Dejonge & Co., Louis
Holyoke Coated & Printed Paper Co.
Hughes and Hoffman
Keller-Dorian Paper Co., Inc.
Kimberly-Clark Corp.
Kupfer Bros. Co.
Matthias Paper Corp.
Pejepscot Paper Co.
Ray-O-Nite Coated Paper Mills
Royal Paper Corp.
Sanderson Products, Inc.
Schulman Co., Louis
Walther & Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER, CORK

Aldine Paper Co.
Armstrong Cork Co., Closure Division
Bradner Smith & Co.
Dennison Mfg. Co.
Dodge Cork Co., Inc.
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Matthias Paper Corp.
Mundet Cork Corp.
Paper Affiliates Co., Inc.
Pauli Corp., Karl
United Mfg. Co.
Whiting, C. R., Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER, CORRUGATED FOR WINDOW TRIMMING!

Capex Company, The
Excelsior Paper Specialties Co., Inc.
Gaylord Container Corp.
Inland Container Corp.
Paper Affiliates Co., Inc.
Reyburn Mfg. Co., Inc., The
Royal Paper Corp.

PAPER, CREPE

Aldine Paper Co., Inc.
American Tissue Mills
Dennison Mfg. Co.
Kalamazoo Vegetable Parchment Co.
Reyburn Mfg. Co., Inc., The
Sweetnam, Inc., Geo. H.
Tuttle Press Co., The

PAPER, EMBOSSED

Aldine Paper Co.
Artcote Papers, Inc.
Bendix Paper Co.
Ben-Mont Papers, Inc.
Beveridge-Marvellum Co.
Birge & Son Co., M. H.
Bradner Smith & Co.
Chicago Printed String Co.
Collins Mfg. Co., A. M.
Crystal Tissue Co., The
Datz & Son, A. S.
Decatone Products
Dejonge & Co., Louis
Dennison Mfg. Co.
District of Columbia Paper Mills, Inc.
Hampden Glazed Paper & Card Co.
Hartford City Paper Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Card & Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Japan Paper Company
Kalamazoo Vegetable Parchment Co.
Keller-Dorian Paper Co., Inc.
Kimberly-Clark Corp.
Kupfer Bros., Co.
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Corp.
Nashua Gummed & Coated Paper Co.
National Coated Paper Corp.
New England Card & Paper Co., Inc.
Orchard Paper Co.
Orono Pulp & Paper Co.
Paper Affiliates Co., Inc.
Paper City Mfg. Co., Inc.
Pauli Corp., Karl
Pyrotex Leather Co.
Racquette River Paper Co., The
Ramac, Inc.
Ray-O-Nite Coated Paper Mills
Rhinelander Paper Co.
Riegel Paper Corp.
Royal Paper Corp.
Sanderson Products, Inc.
Schulman Co., Louis
Sweetnam, Inc., Geo. H.
Tamm & Co.
Tuttle Press Co., The
United Cotton Products Co.
United Mfg. Co.
Walther & Co., Inc.
Welsh Paper Co.
Westfield River Paper Co., Inc.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER, EMBOSSED METAL

Aldine Paper Co., Inc.
Aluminum Co. of America
American Foil Corp.
Artcote Papers, Inc.
Bendix Paper Co.
Ben-Mont Papers, Inc.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Collins Mfg. Co., A. M.
Datz & Son, A. S.
Dejonge & Co., Louis
Foxon Co., The
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hartford City Paper Co.
Hinkson Paper Co.
Holyoke Card & Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Kupfer Bros. Co.
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Corp.
Nashua Gummed & Coated Paper Co.
New England Card & Paper Co.
Orchard Paper Co.
Paper Affiliates Co., Inc.
Paper City Mfg. Co., Inc.
Pauli Corp., Karl

XUM

Ray-O-Nite Coated Paper Mills
Reynolds Metals Co., Inc.
Royal Paper Corp.
Sanderson Products Inc.
Schulman Co., Louis
Springfield Glazed Paper Co.
Standard Rolling Mills, Inc.
United Cotton Products Co.
United Mfg. Co.
Walther & Co., Inc.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER, EXCELSIOR

Ben-Mont Papers, Inc.
Crystal Tissue Co., The
Daniels Mfg. Co.
Kalamazoo Vegetable Parchment Co.
La Monte & Son, George
Paterson Parchment Paper Co.
Pioneer Paper Stock Co.
Sweetnam, Inc., Geo. H.
Sylvania Industrial Corp.
Traver Corp.

PAPER, FANCY, PRINTED

Aldine Paper Co., Inc.
Bendix Paper Co.
Ben-Mont Papers, Inc.
Beveridge-Marvellum Co.
Birge & Son Co., M. H.
Bradner Smith & Co.
Chicago Printed String Co.
Collins Mfg. Co., A. M.
Crystal Tissue Co., The
Daniels Mfg. Co.
Datz & Son, A. S.
Decatone Products
Dejonge & Co., Louis
Dennison Mfg. Co.
District of Columbia Paper Mills, Inc.
Hampden Glazed Paper & Card Co.
Hartford City Paper Co.
Hazen Paper Co.
Heywood Co., Inc. R. R.
Hinkson Paper Co.
Holyoke Card & Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Japan Paper Company
Kalamazoo Vegetable Parchment Co.
Keller-Dorian Paper Co., Inc.
Kimberly-Clark Corp.
Kupfer Bros. Co.
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Micacrystal Products Co.
Morart Paper Co., Inc.
Morart Rotophot Co., Inc.
Nashua Gummed & Coated Paper Co.
National Coated Paper Corp.
New England Card & Paper Co.
Orchard Paper Co.
Paper Affiliates Co., Inc.
Paper City Mfg. Co., Inc.
Pauli Corp., Karl
Racquette River Paper Co., The
Ramac, Inc.
Ray-O-Nite Coated Paper Mills
Rhinelander Paper Co.
Riegel Paper Corp.
Royal Paper Corp.
Sanderson Products Inc.
Schulman Co., Louis
United Cotton Products Co.
United Mfg. Co.
Walther & Co., Inc.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER FINISHERS
(Varnish and Lacquer)

Acme Gumming & Varnishing Co.
American Finishing Co.
American Gumming Co.
Chasen & Co., Alex
Christie, Hugh J.
Crawford Co., John W.
Elliott & Mallery
Fell Bros.
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Henschel Mfg. Co., C. B.
Kellner, J.
Lithographers Finishing Co.
Lowery & Schwartz, Inc.
McCauley Finishing Co., Inc., G. H.
McCoy Label Co.
McCoy Paper Converters
McKenna & Phelps, Inc.
Modica Syndicate Press
North River Labeling Co.
O'Brien Finishing Co., Inc., P. E.
O'Connor, Edw. M.
Perfect Finishing Co., Inc.
Philadelphia Label Cutting Co.
Schneider Bros. Co.
Standard Finishing Co., Inc.
Superior Label Finishing Co.
Tablet & Ticket Co., The
U. S. Finishing & Mfg. Co.
Universal Label Products Co.
Walley Co., C. P.
Wiener Bros, Inc.

PAPER, FLINT GLAZED

Bradner Smith & Co.
Datz & Son, A. S.
Dejonge & Co., Louis
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Keller-Dorian Paper Co., The
Kupfer Bros. Co.
Matthias Paper Corp.
Metz Paper Co.
Paper Affiliates Co., Inc.
Paper City Mfg. Co.
Ray-O-Nite Coated Paper Mills, Inc.
Royal Paper Corp.
Sanderson Products Inc.
Schulman Co., Louis
Springfield Glazed Paper Co.
United Mfg. Co.
Walther & Co., Inc.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.
Wyomissing Glazed Paper Co.

PAPER, FRICTION GLAZED

Ben-Mont Papers, Inc.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Collins Mfg. Co., A. M.
Datz & Son, A. S.
Dejonge & Co., Louis
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Keller-Dorian Paper Co.
Kupfer Bros. Co.
McLaurin Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Corp.
Nashua Gummed & Coated Paper Co.
National Coated Paper Corp.
New England Card & Paper Co., Inc.
Paper Affiliates Co., Inc.
Paper City Mfg. Co.
Ramac, Inc.
Ray-O-Nite Coated Paper Mills, Inc.
Royal Paper Corp.
Sanderson Products Inc.
Schulman Co., Louis
Springfield Glazed Paper Co.
United Mfg. Co.
Walther & Co., Inc.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.
Wyomissing Glazed Paper Co.

PAPER, GLASSINE
(Plain and Embossed)

Aldine Paper Co.
Ben-Mont Papers, Inc.
Bradner Smith & Co.
Central Waxed Paper Co.
Chicago Printed String Co.
Daniels Manufacturing Co.
Deerfield Glassine Co.
Dennison Mfg. Co.
Detroit Wax Paper Co.
Glassine Paper Co.
Hamersley Mfg. Co., The (Plain)
Hartford City Paper Co.
Holyoke Coated & Printed Paper Co.
Kalamazoo Vegetable Parchment Co.
Kupfer Bros. Co.
McDowell Paper Mills
Marvellum Co., The
Matthias Paper Corp.
Nashua Gummed & Coated Paper Co.
Newark Paraffine & Parchment Paper Co.
Rhinelander Paper Co.
Riegel Paper Corp.
Royal Paper Corp.
Sweetnam, Inc., Geo. H.
Westfield River Paper Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER, GREASEPROOF

Aldine Paper Co.
American Tissue Mills
Ben-Mont Papers, Inc.
Bradner Smith & Co.
Celluloid Corp.
Central Waxed Paper Co.
Crystal Tissue Co., The
Daniels Manufacturing Co. (Printed)
Deerfield Glassine Co.
Dennison Mfg. Co.
Detroit Wax Paper Co.
du Pont de Nemours & Co., Inc., E. I.
Eastman Kodak Co.
Gardner-Richardson Co., The
Glassine Paper Co.
Goodyear Tire & Rubber Co., Inc., The Pliofilm Sales Div.
Hamersley Mfg. Co., The
Hartford City Paper Co.
Kalamazoo Vegetable Parchment Co.
Kupfer Bros. Co.
McDowell Paper Mills
Marvellum Co.
Matthias Paper Corp.
Menasha Products Co.
Nashua Gummed & Coated Paper Co.
Newark Paraffine & Parchment Paper Co.
Paper Affiliates Co., Inc.
Paterson Parchment Paper Co.
Reynolds Metals Co., Inc.
Rhinelander Paper Co.
Riegel Paper Corp.
Royal Paper Corp.
Sweetnam, Inc., Geo. H.
Sylvania Industrial Corp.
Warren Co., S. D.
West Carrollton Parchment Co.
Westfield River Paper Co., Inc.

PAPER, GUMMED

Artcote Papers, Inc.
Bradner Smith & Co.

XUM

Central Paper Co.
Chicago Gummed Tape Co.
Dejonge & Co.
Dennison Mfg. Co.
Edgewater Paper Co.
Gummed Products Co.
Gummed Tape & Devices Co.
Holyoke Coated & Printed Paper Co.
Keller-Dorian Paper Co., Inc.
McLaurin-Jones Co.
Matthias Paper Corp.
Mid-States Gummed Paper Co.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Paper Manufacturers Co., Inc.
Pauli Corp., Karl
Rexford Paper Co.
Royal Paper Corp.
Whiting-Patterson Co., Inc.

PAPER, IMITATION LEATHER

Aldine Paper Co.
Atlas Powder Co., Zapon Division
Beveridge-Marvellum Co., The
Bradner Smith & Co.
Collins Mfg. Co., A. M.
Datz & Son, A. S.
Dejonge & Co., Louis
Dobeckmun Co., The
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hinkson Paper Co.
Holliston Mills, Inc.
Holyoke Card & Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes and Hoffman
Keller-Dorian Paper Co.
Kupfer Bros. Co.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Corp.
Nashua Gummed & Coated Paper Co.
New England Card & Paper Co., Inc.
Paper Affiliates Co., Inc.
Pyrotex Leather Co.
Ramac, Inc.
Racquette River Paper Co., The
Riegel Paper Corp.
Royal Paper Corp.
Sanderson Products Inc.
Schulman Co., Louis
Textileather Corp.
United Cotton Products Co.
United Mfg. Co.
Walther & Company, Inc.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.

PAPER, KRAFT

Bogalusa Paper Co.
Bradner Smith & Co.
Brown Co.
Chippewa Paper Products, Inc.
Crown-Willamette Paper Co.
Dennison Mfg. Co.
Equitable Paper Bag Co., Inc.
Gaylord Container Corp.
Hollingsworth & Whitney Co.
International Paper Co.
Jaite Company, The
Mosinee Paper Mills Co.
Paterson Parchment Paper Co.
Racquette River Paper Co., The
Royal Paper Corp.
Seal, Inc., (Heat-Sealing)
Thilmany Pulp & Paper Co.
Tomahawk Kraft Paper Co.
Union Bag & Paper Corp.
Williams & Co., Inc., Chas. W.

PAPER, KRAFT-WAXED

Bradner Smith & Co.
Chippewa Paper Products, Inc.
Continental Bag & Paper Corp.
Kalamazoo Vegetable Parchment Co.
Matthias Paper Corp.
Menasha Products Co., The
Nashua Gummed & Coated Paper Co.
Paterson Parchment Paper Co.
Traver Corp.
Union Bag & Paper Corp.

PAPER, LITHOGRAPHED, FANCY

Addison Litho. Co.
American Colortype Co.
American Label Co.
Bradner Smith & Co.
Central Litho. Co.
Consolidated Lithographing Corp.
Crystal Tissue Co., The
Heywood Co., Inc., R. R.
Holyoke Coated & Printed Paper Co.
Hughes and Hoffman
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Kupfer Bros. Co.
Matthias Paper Corp.
Michigan Litho. Co.
Morart Paper Co., Inc.
Morart Rotophot Co., Inc.
Niagara Lithograph Co.
Oberly & Newell Litho. Corp.
Paper Affiliates Co., Inc.
Sanderson Products Inc.
Schmidt Litho. Co., Theo. A.
Schmitt & Co., Inc., Geo.
Stecher-Traung Lithograph Corp.
Tamm & Co.
Trade Lithograph & Printing Co., Inc.
Trautmann, Bailey & Blampey
Welsh Paper Co.
Williams & Co., Inc., Chas. W.

PAPER, METALLIC COATED (Plain and Embossed)

Aldine Paper Co., Inc.
Aluminum Co. of America
American Foil Corp.
Artcote Papers, Inc.
Beekman Paper & Card Co.
Bendix Paper Co.
Ben-Mont Papers, Inc.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Collins Mfg. Co., A. M.
Datz & Son, A. S.
Dejonge & Co., Louis
Dennison Mfg. Co.
Dobeckmun Co., The
Hampden Glazed Paper & Card Co.
Hartford City Paper Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes and Hoffman
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Kupfer Bros. Co.
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Metz Paper Co.
Middlesex Products Corp.
Miller, Inc., Bert C.
Miller Paper Co.
Nashua Gummed & Coated Paper Co.
National Coated Paper Corp.
New England Card & Paper Co., Inc.
Paper Affiliates Co., Inc.
Paper City Mfg. Co., Inc.
Paterson Parchment Paper Co.
Pauli Corp., Karl
Racquette River Paper Co., The
Ray-O-Nite Coated Paper Mills
Reynolds Metals Co., Inc.
Royal Paper Corp.
Sanderson Products Inc.
Schulman Co., Louis
United Mfg. Co.
Walther & Co., Inc.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.
Wyomissing Glazed Paper Co.

PAPER, PARCHMENT

Bradner Smith & Co.
Dejonge & Co., Louis
Hamersley Mfg. Co., The
Hartford City Paper Co.
Hazen Paper Co.
Japan Paper Company
Kalamazoo Vegetable Parchment Co.
Marvellum Co., The
Paterson Parchment Paper Co.
Riegel Paper Corp.
Royal Paper Corp.
Strathmore Paper Co.
Sweetnam, Inc., Geo. H.
West Carrollton Parchment Co.

PAPER, PARCHMENT VEGETABLE

Bradner Smith & Co.
Dejonge & Co., Louis
Japan Paper Company
Kalamazoo Vegetable Parchment Co.
Paterson Parchment Paper Co.
Royal Paper Corp.
Seal, Inc. (Heat-Sealing)
West Carrollton Parchment Co.

PAPER, PLATED

Aldine Paper Co.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Collins Mfg. Co., A. M.
Datz & Son, A. S.
Dejonge & Co., Louis
Dennison Mfg. Co.
Hampden Glazed Paper & Card Co.
Hinkson Paper Co.
Holyoke Card & Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Keller-Dorian Paper Co.
Kupfer Bros. Co
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Corp.
Nashua Gummed & Coated Paper Co.
New England Card & Paper Co., Inc.
Paper City Mfg. Co.
Paper Affiliates Co., Inc.
Racquette River Paper Co., The
Ramac, Inc.
Ray-O-Nite Coated Paper Mills
Royal Paper Corp.
Sanderson Products, Inc.
Schulman, Louis
Springfield Glazed Paper Co.
United Mfg. Co.
Walther & Co., Inc.
Warren Co., S. D.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.
Wyomissing Glazed Paper Co.

PAPER, PYROXYLIN COATED

Aldine Paper Co.
Artcote Papers, Inc.
Beveridge-Marvellum Co.
Bradner Smith & Co.
Dejonge & Co., Louis
Dennison Mfg. Co.
du Pont de Nemours & Co., Inc., E. I.
Egyptian Lacquer Mfg. Co., The
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hinkson Paper Co.

Holliston Mills, Inc.
Holyoke Coated & Printed Paper Co.
Hughes & Hoffman
Keller-Dorian Paper Co., Inc.
Lowery & Schwartz, Inc.
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Metz Paper Co.
Miller Paper Co.
National Coated Paper Corp.
Paper Affiliates Co., Inc.
Pauli Corp., Karl
Pyrotex Leather Co.
Ray-O-Nite Coated Paper Mills
Richardson Taylor-Globe Corp., The
Royal Paper Corp.
Springfield Glazed Paper Co.
United Cotton Products Corp.
United Mfg. Co.
Welsh Paper Co.
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

PAPER, SHREDDED

Ben-Mont Papers, Inc.
Crystal Tissue Co., The
Daniels Mfg. Co.
Dennison Mfg. Co.
Kalamazoo Vegetable Parchment Co.
La Monte & Son, George
Paterson Parchment Paper Co.
Pioneer Paper Stock Co.
Sweetnam, Inc., Geo. H.

PAPERS, SPECIALTY, ALL TYPES FOR CONVERTERS

Fitchburg Paper Co.
Warren Co., S. D.

PAPER, TISSUE

American Tissue Mills
Ben-Mont Papers, Inc.
Bradner Smith & Co.
Chicago Printed String Co.
Crystal Tissue Co., The
Dennison Mfg. Co.
Detroit Wax Paper Co.
Fort Howard Paper Co.
Japan Paper Company
Marathon Paper Mills
Matthias Paper Co.
Nashua Gummed & Coated Paper Co.
Royal Paper Corp.
Sweetnam, Inc., Geo. H.
Tuttle Press, Co., The
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

PAPER, TRADEMARK

Aldine Paper Co., Inc.
Bradner Smith & Co.
Collins Mfg. Co., A. M.
Decatone Products
Dejonge & Co., Louis
Hampden Glazed Paper & Card Co.
Hartford City Paper Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Card & Paper Co.
Holyoke Coated & Printed Paper Co.
La Monte & Son, George
Matthias Paper Corp.
Micacrystal Products Co.
Morart Paper Co., Inc.
Morart Rotophot Co., Inc.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Racquette River Paper Co., The
Royal Paper Corp.
Trade Lithograph & Printing Co., Inc. (Lithographed)
Union Bag & Paper Corp.
United Mfg. Co.
Walther & Co., Inc.
Warren Co., S. D.
Welsh Paper Co.
Westfield River Paper Co., Inc.
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

PAPER, VELOUR (Plain, Printed and Embossed)

Aldine Paper Co., Inc.
Birge & Sons Co.
Bradner Smith & Co.
Cambridge Paper Box Co.
DeJonge & Co., Louis
Dennison Mfg. Co.
District of Columbia Paper Mills, Inc.
Hampden Glazed Paper & Card Co.
Holyoke Coated & Printed Paper Co.
Hughes and Hoffman
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Kupfer Bros. Co.
McLaurin-Jones Co.
Matthias Paper Corp.
Micacrystal Products Co.
Mosinee Paper Mills Co.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Pauli Corp., Karl
Payson Co., The
Royal Paper Corp.
Stahl Co., G. A.
United Cotton Products Co.
United Mfg. Co.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.
Wyomissing Glazed Paper Co.

PAPER, VELOUR, APPLIQUED

Cambridge Paper Box Co.
Micacrystal Products Co.
Payson Co., The

PAPER, VELOUR, SILK

Bradner Smith & Co.
Hampden Glazed Paper & Card Co.
Holyoke Coated & Printed Paper Co.
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Matthias Paper Corp.
Mosinee Paper Mills Co.
Nashua Gummed & Coated Paper Co.
Paper Affiliates, Co., Inc.
Pauli Corp., Karl
Payson Co., The
Whiting Co., Inc., C. R.
Williams & Co., Inc., Chas. W.

PAPER, WAXED

American Tissue Mills
Ben-Mont Papers, Inc.
Bradner Smith & Co.
Brown Co.
Central Waxed Paper Co.
Chippewa Paper Products, Inc.
Crystal Tissue Co., The
Detroit Wax Paper Co.
Dixie Wax Paper Co., Inc.
General Waxed Papers, Inc.
Hamersley Mfg. Co., The
Henle Wax Paper Mfg. Co., The
Kalamazoo Vegetable Parchment Co.
Kuhmarker Waxed Paper Co.
Menasha Products Co., The
Nashua Gummed & Coated Paper Co.
Newark Paraffine & Parchment Paper Co.
Ohio Wax Paper Co.
Paterson Parchment Paper Co.
Rap-In-Wax Paper Co.
Racquette River Paper Co., The
Riegel Paper Corp.
Specialty Paper Co.
Sweetnam, Inc., Geo. H.
Waterproof Board & Paper Co.
Waxed Products Co., Inc.

PAPER, WOOD VENEER (Imitation)

Aldine Paper Co., Inc.
Bradner Smith & Co.
Dejonge & Co., Louis
Dennison Mfg. Co.
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Card & Paper Co.
Japan Paper Company
Keller-Dorian Paper Co., Inc.
Marvellum Co., The
Matthias Paper Corp.
Middlesex Products Co.
Morart Paper Co., Inc.
Morart Rotophot Co., Inc.
Nashua Gummed & Coated Paper Co.
Paper Affiliates Co., Inc.
Ramac, Inc.
Royal Paper Corp.
Sanderson Products, Inc.
United Mfg. Co.
Walther & Co., Inc.
Whiting Co., Inc., C. R.
Williams & Co., Chas. W.

PAPER, WRAPPING (Fancy Tissue)

Aldine Paper Co., Inc.
American Tissue Mills
Ben-Mont Papers, Inc.
Birge & Sons Co., M. H.
Bradner Smith & Co.
Chicago Printed String Co.
Crystal Tissue Co., The
Datz & Son, A. S.
Dejonge & Co., Louis
Dennison Mfg. Co.
Gaylord Container Corp.
Hampden Glazed Paper & Card Co.
Hazen Paper Co.
Hinkson Paper Co.
Holyoke Coated & Printed Paper Co.
Hughes and Hoffman
Japan Paper Company
Kalamazoo Vegetable Parchment Co.
Keller-Dorian Paper Co., Inc.
Kupfer Bros. Co.
La Monte & Son, George
McLaurin-Jones Co.
Marvellum Co., The
Matthias Paper Corp.
Micacrystal Products Co.
Morart Paper Co., Inc.
Morart Rotophot Co., Inc.
Nashua Gummed & Coated Paper Co.
Paterson Parchment Paper Co.
Pauli Corp., Karl
Racquette River Paper Co.
Royal Paper Corp.
Schulman Co., Louis
Seal, Inc. (Heat-Sealing)
Tuttle Press Co., The
United Mfg. Co., The
Walther & Co., Inc.
Welsh Paper Co.
Westfield River Paper Co., Inc.
Whiting Co., Inc., C. R.
Whiting-Patterson Co., Inc.
Williams & Co., Inc., Chas. W.

PASTES

See Adhesives

XUM

PNEUMATIC TUBE SYSTEMS

Lamson Co., The
Standard Conveyor Co.

PRESSES, ALL-SIZE ROTARY

Chambon Corp.
Champlain Corp.
Claybourn Corp.
Colton Co., Arthur
Haida Engineering Co.
Hudson-Sharp Machine Co.
Klingrose Machine Corp.
L. C. Machinery Co., Inc.
Marconetti, Inc., A. E.
Meisel Press Mfg. Co.
New Jersey Machine Corp.
Package Machinery Co.
Potdevin Machine Co.
Printcote Co., Inc., The
Rotogravure Engineering Corp.
Stokes Machine Co., F. J.
Stokes & Smith Co.
U. P. M. Kidder Press Co.
Weiss, A.

PRESSES FOR EMBOSSED SEALS

Meisel Press Mfg. Co.

PRESSES, MULTI-COLOR PRINTING (Cartons, Labels, Wraps)

Chambon Corp.
Champlain Corp.
Claybourn Corp.
Haida Engineering Co.
Henschel Mfg. Co., C. B.
Hudson Sharp Machine Co.
Klingrose Machine Corp.
L. C. Machinery Co., Inc.
Marconetti, Inc., A. E.
Meisel Press Mfg. Co.
Milprint, Inc.
Package Machinery Co.
Potdevin Machine Co.
Printcote Co., Inc., The
Rotogravure Engineering Corp.
Rutherford Machinery Co.
U. P. M. Kidder Press Co.
Waldron Corp., John
Weiss, A.

PRESSES, PRINTING (Transparent Cellulose)

Amsco Packaging Machinery, Inc.
Chambon Corp.
Champlain Corp.
Claybourn Corp.
Haida Engineering Co.
Henschel Mfg. Co., C. B.
Klingrose Machine Corp.
L. C. Machinery Co., Inc.
Meisel Press Mfg. Co.
Potdevin Machine Co.
Printcote Co., Inc., The
Rotogravure Engineering Corp.
U. P. M. Kidder Press Co.
Waldron Corp., John
Weiss, A.

PRESSES, ROTOGRAVURE

Chambon Corp.
Klingrose Machine Corp.
L. C. Machinery Co., Inc.
Meisel Press Mfg. Co.
Printcote Co., Inc., The
Rotogravure Engineering Corp.
U. P. M. Kidder Press Co.
Weiss, A.

PRINTING (On Bottles, Glass & Plastics)

Anchor Hocking Glass Corp.
Anigraphic Process, Inc.

PRINTING ROLLERS

Bingham Bros. Co.
Chambon Corp.
Champlain Corp.
Dornbusch Agency, Inc., The
Haida Engineering Co.
Hudson-Sharp Machine Co.
Klingrose Machine Corp.
L. C. Machinery Co., Inc.
Marconetti, Inc., A. E.
Model Machinery Corp.
Potdevin Machine Co.
Printcote Co., Inc., The
U. S. Rubber Products, Inc.

PUMP (Vacuum or Air Pressure)

New Jersey Machine Corp.

PUMPS

Aldrich Pump Co., The
Kiefer Machine Co., The Karl
Pennsylvania Pump & Compressor Co.
Stokes Machine Co., F. J.
U. S. Bottlers Machinery Co.

PYROXYLIN PLASTICS

Celluloid Corp.
du Pont de Nemours & Co., Inc., E. I.
Monsanto Chemical Co.
Nixon Nitration Works

RAISED PRINTING

Barnard Mfg. Co., Paul J.
Ben-Mont Papers, Inc.
Dennison Mfg. Co.
Hanograf Corp.
Meisel Press Mfg. Co.
Wood, Nathan & Virkus Co., Inc., (Virkotype Process)

RIBBONS, CELLULOSE

Crystal Tissue Co., The
Dennison Mfg. Co.
Dobeckmun Co., The
Du-Tone Ribbon Corp.
Fibre Cord Co., Inc.
Freydberg Bros., Inc.
General Ribbon Mills
Hy-Sil Mfg. Co.
Lustro Ribbon Co., Inc.
Micacrystal Products Co.
Stark Bros. Ribbon Co.
Swift & Sons, Inc., M.
Thayer Mfg. Co.
Walser Mfg. Co., Inc., The

RIBBONS AND TIES (Plain and Decorative)

Ben-Mont Papers, Inc.
Chicago Printed String Co.
Crystal Tissue Co., The
Dennison Mfg. Co.
Du-Tone Ribbon Corp.
Fibre Cord Co., Inc.
Freydberg Bros., Inc.
Gerstein Bros. Mfg. Corp.
Hy-Sil Mfg. Co.
Japan Paper Co.
Micacrystal Products Co.
Milwaukee Printed String Co.
National Tinsel Mfg. Co.
Royal Paper Corp.
Stark Bros. Ribbon Corp.
Taft Co., R. C.
Thayer Mfg. Co.
Walser Mfg. Co., Inc., The
W-E-R-Ribbon Corp.
Wurzburg Bros.

ROLL LEAF (Stamping Foil)

Cambridge Paper Box Co.
Coughlin Manufacturing Co.
Dejonge & Co., Louis
Diamond Decorative Leaf Co.
Griffin, Campbell, Hayes, Walsh, Inc.
Hastings & Co.
Holliston Mills, Inc., The
Kemp Co., W. H.
Krause Inc., Richard M.
Markem Machine Co.
Matthias Paper Corp.
Nashua Gummed & Coated Paper Co.
Pauli Corp., Karl
Peacock Roll Leaf Co.
Peerless Roll Leaf Co., Inc.
Swift & Sons, Inc., M.

ROLL LEAF STAMPING EQUIPMENT

Griffin, Campbell, Hayes, Walsh, Inc.
Markem Machine Co.
Peerless Roll Leaf Co., Inc.
Thomson National Press Co.

RULES, PAPER CUTTING

Helmold & Bro. Inc., J. F.
Simonds Saw & Steel Co.

SAUSAGE CASINGS (Artificial Transparent)

Sylvania Industrial Corp.

SCALES, AUTOMATIC CHECK WEIGHERS

Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Exact Weight Scale Co., The
Goat Co., Inc., The Fred
Gump Co., B. F.
International Business Machines Corp.
Jacobs Bros. Co., Inc.
Johnson Automatic Sealer Co., Ltd.
Merric Scale Mfg. Co.
Pneumatic Scale Corp., Ltd.
Stokes & Smith Co.
Toledo Precision Devices, Inc.
Toledo Scale Co.
Weigh Right Automatic Scale Co.

SCALES, AUTOMATIC WEIGHING, FILLING

American Machine & Foundry Co.
Amsco Packaging Machinery, Inc.
Arenco Machine Co., Inc.
Automatic Scale Co.
Bostitch, Inc.
Consolidated Packaging Machinery Corp.
Exact Weight Scale Co., The
Ferguson Co., J. L.
Goat Co., Inc., The Fred
Gump Co., B. F.
Johnson Automatic Sealer Co., Ltd.
Miller Wrapping & Sealing Machine Co.
National Packaging Machinery Co.
Package Machinery Co.
Pneumatic Scale Corp., Ltd.
Richardson Scale Co.
Rose Bros. (Gainsborough), Ltd.

XUM

Stokes Machine Co., F. J.
Stokes & Smith Co.
Syntron Company
Toledo Precision Devices, Inc.
Toledo Scale Co.
Triangle Package Machinery Co.
U. S. Automatic Box Machinery Co., Inc.
Vol-U-meter Co., Inc.
Weigh Right Automatic Scale Co.

SCALES, FREIGHT, EXPRESS

Amsco Packaging Machinery, Inc.
Exact Weight Scale Co., The
Fairbanks, Morse & Co.
Howe Scale Co.
Jacobs Bros. Co., Inc.
Kron Co., The
Toledo Scale Co.

SEALS, EMBOSSED

Aluminum Seal Co.
Attleboro Printing & Embossing Co.
Cameo Die & Label Co.
Chicago Printed String Co.
Consolidated Lithographing Corp.
Dennison Mfg. Co.
Ever Ready Label Corp.
Foxon Co., The
Fuller Label & Box Co.
French-Bray Printing Co., The
Grammes & Sons, Inc., L. F.
Grand Rapids Label Co.
Heywood Co., Inc., R. R.
Horn, John
Hy-Sil Mfg. Co.
Kaumagraph Co.
Krause, Inc., Richard M.
Mason & Sons, F. E.
May Co., The J. L.
Meisel Press Mfg. Co.
Milwaukee Label & Seal Co.
Nalco, Inc.
National Color Printing Co., Inc., The
Pacific Fine Arts-Pacific Label Co.
Palm, Fechteler & Co.
Reyburn Mfg. Co., Inc., The
Reynolds Metals Co., Inc.
St. Louis Sticker Co.
Shuman Co., Frank G.
Stanley Mfg. Co.
Stecher-Traung Lithograph Corp.
Tablet & Ticket Co., The
Triangle Package Machinery Co.
Wheeler-Van Label Co.
Wurzburg Bros.
Wynekoop Co., Walker

SILICATE-OF-SODA

Arabol Mfg. Co.
Bingham Bros. Co.
Du Pont de Nemours & Co., Inc., E. I.
Findley Co., The F. G.
Grasselli Chemical Co., The
Mechling Bros. Chemical Co.
Paisley Products, Inc.
Philadelphia Quartz Co.
Standard Silicate Div.

SPOOLS, FIBRE

American Can Co.
Cleveland Container Co.
Cross Paper Products Corp.
Gates Paper Co., Ltd.
R. C. Can Co.
Ritchie & Co., W. C.
Sefton Fibre Can Co.

SPOUTS, POURING

American Aluminum Ware Co. (Aluminum)
American Can Co.
Anchor Cap & Closure Corp.
Aridor Co., The
Consolidated Fruit Jar Co.
Continental Can Co., Inc.
Dennison Mfg. Co.
Food Dispenser Co.
National Can Corp.
National Folding Box Co.
R. C. Can Company
Ritchie & Co., W. C.
Scovill Manufacturing Co.
Sefton Fibre Can Co.
Seeley Tube & Box Co.
Standard Specialty & Tube Co.

SPOUTS, TIN CAN

American Can Co.
Anchor Cap & Closure Corp.
Art Tube Co.
Consolidated Fruit Jar Co.
Continental Can Co., Inc.
Gutmann & Co., Ferdinand
National Can Corp.
National Seal Co., Inc.
R. C. Can Co.
Standard Specialty & Tube Co.
White Metal Mfg. Co.
Wirz, Inc., A. H.

SPRAYERS, BOTTLE & CAN, FOR LIQUIDS

American Aluminum Ware Co.
Federal Tool Corp.
Scovill Manufacturing Co.

SPRINKLER TOPS

Aluminum Co. of America
American Aluminum Ware Co.
Anchor Cap & Closure Corp.
Armstrong Cork Co., Closure Division
Art Tube Co.
Bridgeport Metal Goods Mfg. Co.
Chase Brass & Copper Co., Inc.
Colt's Patent Fire Arms Mfg. Co.
Consolidated Fruit Jar Co.
Dodge Cork Co., Inc.
Gates Paper Co., Ltd.
Imperial Metal Mfg. Corp.
Mundet Cork Corp.
Peerless Tube Co.
R. C. Can Co.
Ritchie & Co., W. C.
Scovill Manufacturing Co.
Seeley Tube & Box Co.
Sun Tube Corp.
Thorn Tite Tops, Inc.
White Metal Mfg. Co.
Wirz, Inc., A. H.
Wurzburg Bros.

STAPLES, WIRE

Acme Staple Co.
Acme Steel Co.
Bates Mfg. Co., The
Bostitch, Inc.
Dennison Mfg. Co.
Diagraph-Bradley Stencil Machine Corp.
Heller Co., The
Hotchkiss Sales Co.
Paslode Co.
Saranac Machine Co.
Wurzburg Bros.

STOPPERS, RUBBER

Anchor Cap & Closure Corp.
U. S. Rubber Products, Inc.

STRING, PRINTED (Plain and Decorative)

Chicago Printed String Co.
Fibre Cord Co., Inc.
Freydberg Bros.
Milwaukee Printed Spring Co.
National Tinsel Mfg. Co.
Stark Bros. Ribbon Corp.

TAGS, SHIPPING

Cambridge Paper Box Co.
Campbell Box & Tag Co.
Chippewa Paper Products, Inc.
Cupples-Hesse Envelope & Litho. Co.
Dennison Mfg. Co.
Fox Co., The C. J.
Foxon Co., The
French-Bray Printing Co., The
International Tag & Sales Book Co.
May Co., The J. L.
Milwaukee Printing Co.
Reyburn Mfg. Co., Inc., The
Robinson Tag & Label Co.
Tompkins Label & Service Co.
Wurzburg Bros.

TAPE, CELLULOSE (See Ribbons)

TAPE, COTTON (Plain and Printed)

Chicago Printed String Co.
Freydberg Bros., Inc.
Milwaukee Printed String Co.
Seal, Inc. (Heat-Sealing)

TESTERS, PAPER AND BOARD

Cady & Co., E. J.
Dennison Mfg. Co.
Perkins & Son, Inc., B. F.
Thwing Instrument Co.
Toledo Scale Co.

TIN PLATE

Carnegie-Illinois Steel Corp.
Inland Steel Co.
Jones & Laughlin Steel Corp.
McKeesport Tin Plate Co.
National Can Corp.
Republic Steel Corp.
United States Steel Corp.
Wheeling Steel Corp.

TUBES, CELLULOSE

Cambridge Paper Box Co.
Celluloid Corp.
Dobeckmun Co., The
du Pont de Nemours & Co., Inc., E. I.
Emeloid Co., Inc.
Goodyear Tire & Rubber Co., Inc., The, Pliofilm Sales Div.
Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.
Meyer Bros., Jos. H.
Monsanto Chemical Co.
New England Collapsible Tube Co.
Nixon Nitration Works
Ritchie & Co., W. C.
See-Thru Container Corp.
Transparent Specialties Mfg. Co.
Victor Metal Products Corp.

TUBES, COLLAPSIBLE (Aluminum, Lead, Tin and Alloys)

Aluminum Co. of America (Aluminum only)
Art Tube Co.
Atlantic Mfg. Co.
National Collapsible Tube Co.
New England Collapsible Tube Co.
Peerless Tube Co.
Standard Specialty & Tube Co.
Sun Tube Corp.
Thorn Tite Tops, Inc.
Turner White Metal Co.

XUM

Victor Metal Products Corp.
Wheeling Stamping Co.
White Metal Mfg. Co.
Wirz, Inc., A. H.
Wurzburg Bros.

TUBES, FIBRE

American Can Co.
Cambridge Paper Box Co.
Cin-Made Corp.
Cleveland Container Co.
Cross Paper Products Corp.
Gates Paper Co., Ltd.
International Mailing Tube & Wrapper Co.
Mason Box Co., The
National Paper Can Co.
R. C. Can Co.
Ritchie & Co., W. C.
Seeley Tube & Box Co.
Sefton Fibre Can Co.
Waldorf Paper Products Co.
Wurzburg Bros.

TUBING, GLASS

Kimble Glass Co.

VARNISHES AND LACQUERS (For Coating)

Atlas Powder Co., Zapon Div., and Zapon-Brevolite Div.
Ault & Wiborg Corp.
Bakelite Corp.
Chemical Products Corp.
Commercial Solvents Corp.
du Pont de Nemours & Co., Inc., E. I.
Eastman Kodak Co.
Egyptian Lacquer Mfg. Co.
General Plastics, Inc.
Goodyear Tire & Rubber Co., Inc., The, Pliofilm Sales Div.
Heekin Can Co., The
Hilo Varnish Corp.
Levey Co., Inc., Frederick H.
Maas & Waldstein
Maff, Inc., John
Menasha Products Co., The
Miller, Inc., Bert C.
Monsanto Chemical Co.
Murphy Varnish Co., Essex Varnish Division
National Adhesives Corp.
North Bergen Varnish Corp.
Pope & Gray, Inc.
Pyroxylin Products, Inc.
Resinox Corp.
Roxalin Flexible Lacquer Co.
Sherwin-Williams Co., The
Stanley Chemical Co., The
Watson-Standard Co., The

VIALS, CELLULOSE

Hygienic Tube & Container Co.
Lusteroid Container Co., Inc.
Mack Molding Co., Inc.

VIALS, GLASS

Armstrong Cork Products Co.
Kimble Glass Co. (Plain and Decorated)
Owens-Illinois Glass Co.
Pennsylvania Glass Products Co.

WADDING

Kimberly-Clark Corp.
Pioneer Paper Stock Co.
Sweetnam, Inc., Geo. H.
Union Wadding Co.

WINDOW DISPLAYS

See Boxes, Folding and Display Cartons
See Boxes, Paper Set- Up
See Displays (various headings)
See Lithographers

WIRE, COLORED STITCHING

Acme Steel Co.
Heller Co., The

WIRE, REINFORCEMENT

Acme Steel Co.
Chicago Steel & Wire Co.
Gerrard Co., Inc., The
Heller Co., The
Prentiss & Co., Geo. W.
Seneca Wire & Mfg. Co.
Signode Steel Strapping Co.
Stanley Works, Steel Strapping Div.
Wheeling Steel Corp.

WIRE, STAPLING

Acme Staple Co.
Acme Steel Co.
American Brass Co., The
Bostitch, Inc.
Dexter Folder Co.
Heller Co., The
Ideal Stitcher & Mfg. Co.
National Metal Edge Box Co.
Prentiss & Co., Geo. W.
Saranac Machine Co.
Seneca Wire & Mfg. Co.
Wilson Steel & Wire Co.

WIRE STITCHING

Acme Staple Co.
Acme Steel Co.
American Brass Co., The
American Nickeloid Co.
Bostitch, Inc.
Chicago Steel & Wire Co.
Dexter Folder Co.
Heller Co., The
Ideal Stitcher & Mfg. Co.
Ludlum Steel Co.
Morrison Co., Inc., J. L.
National Metal Edge Box Co.
Prentiss & Co., Geo. W.
Saranac Machine Co.
Seneca Wire & Mfg. Co.
Wilson Steel & Wire Co.

WOOD, VENEER, GENUINE

Japan Paper Company
Keller-Dorian Paper Co., Inc.
Sheip Mfg. Co., Henry H.

WRAPPERS, BOTTLE (Corrugated)

Consolidated Paper Co.
Container Corp. of America
Eddy Paper Corp., The
Gair Co., Inc., Robert
Gaylord Container Corp.
Hinde & Dauch Paper Co., The
Kieckhefer Container Co.
Kimberly-Clark Corp.
Owens-Illinois Glass Co.
River Raisin Paper Co.
Rockford Fibre Container Co.
Sweetnam, Inc., Geo. H.
U. S. Corrugated-Fiber Box Co., The
Waldorf Paper Products Co.

WRAPPERS, FOIL

Aluminum Co. of America
American Foil Corp.
American Label Co.
Ben-Mont Papers, Inc.
Daniels Mfg. Co.
Dennison Mfg. Co.
Foil Products Corp.
Foxon Co., The
French-Bray Printing Co., The
Hartford City Paper Co.
Johnson Automatic Sealer Co., Ltd.
Johnston Tin Foil & Metal Co.
Keller-Dorian Paper Co., Inc.
Matthias Paper Corp.
Milprint, Inc.
Reynolds Metals Co., Inc.
Standard Rolling Mills, Inc.

WRAPPERS, PRINTED GLASSINE

Bendix Paper Co.
Ben-Mont Papers, Inc.
Central Waxed Paper Co.
Daniels Mfg. Co.
Deerfield Glassine Co.
Dennison Mfg. Co.
Detroit Wax Paper Co.
Dobeckmun Co., The
Hamersley Mfg. Co., The
Hartford City Paper Co.
Hazen Paper Co.
Henle Wax Paper Mfg. Co., Inc., The
Holyoke Coated & Printed Paper Co.
Johnson Automatic Sealer Co., Ltd.
Marvellum Co.
Matthias Paper Corp.
Menasha Products Co.
Milprint, Inc.
Nashua Gummed & Coated Paper Co.
Paterson Parchment Paper Co.
Riegel Paper Corp.
Royal & Co., Thomas M.
Shellmar Products Co.
Sweetnam, Inc., Geo. H.
Traver Corp.
United Mfg. Co., The
Westfield River Paper Co.
Wurzburg Bros.

WRAPPERS, TRANSPARENT CELLULOSE

See Cellulose, Transparent (Converters, Fabricators and Printers)
See Cellulose, Transparent (Moisture and Grease-Proof)

WRAPPERS, WAXED PAPER AND PARCHMENT

American Tissue Mills
Ben-Mont Papers, Inc.
Central Waxed Paper Co.
Continental Paper & Bag Corp.
Crystal Tissue Co., The
Detroit Wax Paper Co.
Hamersley Mfg. Co., The
Hartford City Paper Co.
Johnson Automatic Sealer Co., Ltd.
Kalamazoo Vegetable Parchment Co.
Marathon Paper Mills
Menasha Products Co., The
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Newark Paraffine & Parchment Paper Co.
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Bemis Bros. Bag Co., 601 S. Fourth St., St. Louis, Mo.
Bendix Paper Co., 480 Canal St., New York, N. Y.
Bennett Pottery Co., Edwin, 600 South Eden St., Baltimore, Md.
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Bridgeport Molded Prods. Inc., 300 Myrtle Ave., Bridgeport, Conn.
Bridgeport Testing Laboratory Inc., 41 Cannon, Bridgeport, Conn.
Brockway Glass Co. Inc., 1047—7th Ave., Brockway, Pa.
Brooks Bank Note Co., 140 Wilbraham Ave., Springfield, Mass.
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Welden, Archibald W., 101 Park Ave., New York, N. Y.
Weller Company, S. A., Zanesville, O.
Welsh Paper Company, 505 Chestnut St., Philadelphia, Pa.
W-E-R Ribbon Corp., 440—4th Ave., New York, N. Y.
West Carrollton Parchment Co., West Carrollton, O.
Western Label Co., 1129 Wall, Los Angeles, Calif.
Western Pottery Co., Box 894, Denver, Colo.
Western Stoneware Co., Monmouth, Ill.
Westfield River Paper Co. Inc., Russell, Mass.—181
Wheaton Co., T. C., Millville, N. J.
Wheeler, Leonard A., 719 So. Flower, Los Angeles, Calif.
Wheeler-Van Label Co., 21 McConnell St. S.W., Grand Rapids, Mich.
Wheeling Corrugating Co., Steel Container Div., Wheeling, W. Va.
Wheeling Stamping Co., 2100 Water St., Wheeling, W. Va.
Wheeling Steel Corp., Wheeling, W. Va.
Whitall-Tatum Dept. of Armstrong Cork Co., Glass & Closure Div., Lancaster, Pa.
White Cap Company, 1812 No. Central Ave., Chicago, Ill.
White Metal Mfg. Co., 1012 Grand St., Hoboken, N. J.
Whiting Co. Inc., C. R., 620–650 Main St., Hoboken, N. J.
Whiting Patterson Co. Inc., 99 Chauncy, Philadelphia, Pa.
Whitney & Co. Inc., 142 Water St., Leominster, Mass.
Wiener Bros. Inc., 694 Broadway, New York, N. Y.
Wilder Mfg. Co., 97 Crawford St., Leominster, Mass.—109
Wilkins Paper Box Co. Inc., 65 Beverly St., Boston, Mass.
Williams & Co. Inc., Chas. W., 303 Lafayette St., New York, N. Y. Insert 158–159
Williams Sealing Corp., 1226 E. Garfield Ave., Decatur, Ill.
Williamson Glue & Gum Works Inc., 2350 W. 18th Street, Chicago, Ill.—477
Wilmanns Bros. Co., 1255 N. 6th, Milwaukee, Wis.
Wilson & Bennett Mfg. Co., The, 6532 S. Menard Ave., Chicago, Ill.
Wilson Steel & Wire Co., W. 49th & S. Western, Chicago, Ill.
Windman Bros., 3325 Union Pacific Ave., Los Angeles, Calif.
Wirz Inc., A. H., Chester, Pa.—221
Wolf Brothers, 340 N. 12th St., Philadelphia, Pa.
Wolverine Carton Co., P. O. Box 65, Grand Rapids, Mich.
Wood Electric Co. Inc., C. D., 826 Broadway, New York, N. Y.
Wood, Nathan & Virkus Co. Inc., 112 Charlton St., New York, N. Y.
Woodward & Tierman Printing Co., 1440 Broadway, New York, N. Y.
Wortendyke Mfg. Co., P. O. Box 1598, Richmond, Va.
Wrap-Ade Machine Co. Inc., 215 Central Ave., Newark, N. J.
Wright's Automatic Packaging Machine Co., 111 N. Mangum St., Durham, N. C.
Wurzburg Bros., 710–724 South 4th St., Memphis, Tenn.
Wynekoop Co., Walker, 300 W. Hubbard, Chicago, Ill.
Wyomissing Glazed Paper Co., 17 South Second Ave., West Reading, Reading, Pa.

Y

Young Brothers Inc., 722 Eddy St., Providence, R. I.
Young Inc., Douglas, 110 Kenyon Ave., Pawtucket, R. I.—559
Youse Co., C. J., Holliday & Saratoga, Baltimore, Md.
Yundt Co., Michael, Waukesha, Wis.

Z

Zellerbach Paper Co., Sacramento, Calif.
Zipprodt, Inc., 6 N. Michigan Ave., Chicago, Ill.

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SECTION ONE

DESIGN PRINCIPLES

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PACKAGE-TESTING AND ADVISORY INSTITUTIONS

PRINCIPLES OF PACKAGE DESIGN

- Package Functions
- Package Selection Factors
- Design Procedure
- Design Testing
- Initiating the Package Change
- Timing the Package Change

COLOR

PROTECTIVE PACKAGING

- Protection by Design
- Protection Against Competition
- Protection Against Penalization

DIRECT COLOR PHOTOGRAPHY

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ACKNOWLEDGMENT TO CONTRIBUTORS

The Packaging Catalog, being the encyclopedia of the packaging industries, naturally represents the work of many hands. We have attempted to allot full credit to those who have aided us in the preparation of this, the eleventh annual edition.

Articles written by outside contributors bear the names of their authors immediately under the article titles. Contributors of photographs and drawings are credited in illustration captions. But hundreds of others who have aided us with information and advice unfortunately cannot be given any formal recognition other than that contained on this page.

To all those who have helped to make this edition of the Packaging Catalog more complete and more useful, we wish to take this opportunity of extending our sincerest thanks, in the hope that they will find their reward in the quality and completeness of the pages which follow.

Breskin & Charlton Publishing Corporation

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PACKAGE-TESTING AND ADVISORY INSTITUTIONS

A number of Governmental agencies, trade associations, testing laboratories and business firms are in a position to render assistance to packagers in planning and testing packages, package parts, and displays. For purposes of convenience, they are here listed in three groups: (1) Governmental agencies; (2) General advisory and testing institutions—including a number of trade associations, serving particular industries using packages, which have done research or testing work on packages used within particular industries served; (3) Associations maintained by various groups of package and package material suppliers. For ready reference, each listing contains subheadings giving periodicals, nonperiodical publications, and advisory services maintained by the group referred to. Where any of these subheadings are omitted, it should be inferred that the group carries on no services of this particular type.

Modern Packaging and its associate publication, *Modern Plastics*, maintain permanent exhibits of packaging and plastics at their New York City editorial offices. Visitors are welcome from 10:00 A.M. to 4:30 P.M. week days. Special exhibits are held at various periods during the year. The entries and winners in the All-America Package Competition are usually on display during March and April. Entries and prize-winners in the annual Plastics Competition are on display during October and November. Readers are requested to telephone *Modern Packaging* for exact dates of these and other exhibits.

A wealth of material and machinery information will be found at the annual Packaging Show, held annually under the sponsorship of the American Management Association, New York City, in either Chicago or New York. The 1939 show will be held in New York during the month of March.

In conjunction with the Packaging Show, clinics and lectures on various phases of packaging are likewise held under the sponsorship of the American Management Association.

GOVERNMENTAL AGENCIES

Bureau of Agricultural Economics
United States Department of Agriculture
Washington, D. C.

Charged with administration of U. S. Standard Container Acts of 1916 and 1928, relating to Climax baskets, berry boxes, hampers, round stave baskets, splint baskets and other containers for fruits and vegetables.

PUBLICATIONS: List of manufacturers of fruit and vegetable baskets and hampers.

Service and regulatory announcements.

Summary of Federal and State laws relating to containers for fruits and vegetables.

Circular on relationship between weight and volume of fruits and vegetables.

Summary of crates and boxes for fruits and vegetables standardized by State laws and regulations.

Circular on the dimensional method of testing—containing 21 schedules of standard specifications.

ADVISORY SERVICE: Maintains laboratory for volumetric and dimensional testing of containers as to their compliance with the requirements of the Standard Container Acts.

Bureau of Fisheries
Department of Commerce
Washington, D. C.

A Federal bureau concerned with the conservation and economic use of the fisheries of the United States, its territories and outlying possessions.

ADVISORY SERVICES: The Division of Fishery Industries of the Bureau is primarily concerned with the commercial fisheries and their utilization.

The technological staff of the Bureau carry on scientific investigations dealing with the utilization, handling, and preservation of fishery products. Studies of improvements in methods of handling, freezing. and packaging fishery products.

Bureau of Foreign and Domestic Commerce
Department of Commerce
Washington, D. C.
Thomas E. Lyons, Chief, Transportation Division

The Commerce Department's agency for packing research and dissemination of information.

PUBLICATIONS: Series of bulletins on the various types of packages entering domestic commerce.

Bulletins on fibre containers, wooden boxes, wooden crates, plywood boxes, wire-bound boxes, nailed wooden crates, parcel post packages, etc.

Census of Manufactures and Census of Business
The Bureau of the Census
Department of Commerce
Washington, D. C.

ADVISORY SERVICE: Outstanding sources for authoritative statistical information covering the production of packaging materials, containers, and packaging machines, and production and distribution of certain classes of packaged goods.

Federal Trade Commission
Washington, D. C.

ADVISORY SERVICES: The trade practice conference procedure has for its purpose the establishment of trade practice rules for the protection of industry, trade and

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the purchasing public against unfair competitive practices. Under this procedure, effective means are made available for the voluntary participation and cooperation, with the Commission, of industry groups and other interested or affected parties in the establishment and observance of rules of fair practices. Thus competitive action among competitors within the law and under Commission supervision may properly be taken to end trade abuses.

PUBLICATIONS: Trade practice conference rules available on specific projects; for example, the recommendation to the spice trade of standard containers for retail units.

Forest Products Laboratory
Madison, Wis.
C. P. Winslow, Director

A part of the research organization of the Forest Service, U. S. Department of Agriculture.

PUBLICATIONS: Technical Bulletin 171—Results of container research, including fibre boxes.
"Principles of Box and Crate Construction."

ADVISORY SERVICE: Properties and uses of wood and wood products.

Library of Congress
Washington, D. C.

ADVISORY SERVICES: U. S. Copyright Office, a branch of the Library, registers art subjects such as are employed in gift packaging. Prints and labels relating to articles of manufacture, however, are registered in the United States Patent Office.

Complete collection of books in English and foreign languages on packaging in all its branches.

National Bureau of Standards
Washington, D. C.

ADVISORY SERVICES: Scrutiny of packages, as such, is confined principally to the package simplification projects of the Division of Simplified Practice.

Has available numerous specialized studies of packaging materials.

Principal Federal scientific laboratory which serves the cause of progress in industry. Research agency and official testing station for Governmental agencies in examination of samples and verification of purchases.

U. S. Food and Drug Administration
Department of Agriculture
Washington, D. C.

PUBLICATIONS: Copies of statutes and regulations.

ADVISORY SERVICE: Advice as to what constitutes adulteration and misbranding.

United States Patent Office
Washington, D. C.

PUBLICATIONS: Printed copies of patents, trademarks, and designs.

The Official Gazette—an index of the patents issued and trademarks registered each week.

GENERAL ADVISORY AND TESTING INSTITUTES

American Bottlers of Carbonated Beverages
224 Southern Building
Washington, D. C.

PERIODICALS: *A. B. C. B. Monthly Bulletin.*

PUBLICATIONS: Technical monographs covering phases of manufacture.

ADVISORY SERVICE: Maintains an "A. B. C. B. Technical Service," which furnishes information and conducts investigations relative to many of the products produced by affiliate members.

American Management Association
330 West 42nd Street
New York, N. Y.
Henry J. Howlett, Secretary

PUBLICATIONS: *Management Review*—monthly.
Personnel—quarterly.
Business Conditions and Forecasts—monthly.

ADVISORY SERVICE: Maintains a research department and reference library on various problems in packaging for the use of company members.

American Standards Association
29 West 39th Street
New York, N. Y.
P. G. Agnew, Secretary

PERIODICALS: *Industrial Standardization and Commercial Standards*—monthly.

PUBLICATIONS: Year Book—Approved American Standards.

ADVISORY SERVICE: Information service, primarily intended for ASA members, includes information regarding newly approved standards and free copies of all standards requested; free subscription to the monthly magazine; free use of information service which serves as a reference bureau in both domestic and foreign standardization matters and borrowing privileges in the ASA library.

In cooperation with the National Bureau of Standards, through its Division of Trade Standards and Division of Simplified Practice, the Association is concerned both directly and indirectly with packaging materials and packaging practice.

Bureau of Business Research
University of Pittsburgh
Pittsburgh, Pa.

PUBLICATION: "Consumer Attitude Toward Packaging of Meats," a report of a study carried out several years ago with the cooperation of the *National Provisioner.*

Container Testing Laboratories, Inc.
45 East 22nd Street
New York, N. Y.
T. J. Gross

ADVISORY SERVICE: Laboratory facilities for tests on containers of all types, paperboard products, gummed

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tape, and packing accessories. Consulting service, designing, surveys, and inspection.

Cruess, W. V. and Associates
Fruit Products Division
College of Agriculture
University of California
Berkeley, Calif.

ADVISORY SERVICE: Have information on the packaging of fruit products and similar merchandise, particularly dried fruits, fruit juices, and frozen foods.

Gummed Industries Assn., The
19 West 44th Street
New York, N. Y.

ADVISORY SERVICE: Maintains a Certified Products Bureau and a testing laboratory for the determination and preservation of quality standards for sealing tape.

Institute of American Meat Packers
59 East Van Buren Street
Chicago, Ill.
Henry D. Tefft, Director, Department of Packinghouse Practice and Research

PUBLICATION: "Institute Standards For Packinghouse Supplies, Packs and Equipment."

ADVISORY SERVICE: Information available from research work by the Advisory Committee on Standardization.

Metropolitan Life Insurance Company
New York, N. Y.
William J. Barrett, Manager, Policyholders Service Bureau

PERIODICALS: *Executives Service Bulletin.*

PUBLICATIONS: "Use of Style and Design in Industry."
"Packaging—A Selected, Classified Bibliography."
"Product Development."
"Transparent Wrappings as a Sales Aid for Food Products."

National Alliance of Art and Industry, Inc.
119 East 19th Street
New York, N. Y.

ADVISORY SERVICE: Library of information.
Conducts a vocational guidance and placement service for artists and designers.

National Confectioners' Association of the United States, Inc.
224 South Michigan Avenue
Chicago, Ill.
Max F. Burger, Secretary

PERIODICALS: *General Information Bulletin*—monthly.
Past Due Accounts Reports—monthly.
Trademark Bulletin—issued every three weeks.
Merchandising—advertising bulletins.

National Paint, Varnish and Lacquer Association, Inc.
2201 New York Avenue, N. W.
Washington, D. C.
R. K. Shannon, Director, Trade Mark Bureau

PERIODICALS: *1938 Trade Mark Directory.*

Quinn Company, Don L.
609 N. La Salle St.
Chicago, Ill.

ADVISORY SERVICE: Maintains laboratory for box testing and container designing.

Railway Express Agency, Inc.
230 Park Avenue
New York, N. Y.

ADVISORY SERVICE: Gives counsel to shippers or other interested parties on "good packing," "good wrapping," and "good marking."

Traffic Group of the National Retail Dry Goods Assoc.
101 West 31st Street
New York, N. Y.

PUBLICATIONS: Report on unit packing, shipping containers, and store packing.

United States Printing and Lithograph Co., The
Cincinnati, Ohio

ADVISORY SERVICES: Maintains a trade mark bureau which contains all brand-names registered in the Patent Office at Washington, plus twice as many more unregistered brands. Nominal investigating charge of $1.50 per name.

United Typothetae of America
719 Fifteenth St., N. W.
Washington, D. C.

PERIODICALS: *Typothetae Bulletin*, dealing with association activities in the printing industry.

PUBLICATIONS: U. T. A. Course in Selling Printing.
Textbooks on Cost Finding, Accounting, Estimating, and technical subjects relating to printing.

ADVISORY SERVICE: Information with respect to packages in the field of merchandise distribution.

Wolf and Company
1616 Walnut Street
Philadelphia, Pa.

(Certified public accountants.)

ADVISORY SERVICE: Conducts surveys and studies of packaging and kindred subjects for which a charge is made.

INDUSTRY-MAINTAINED INSTITUTIONS

American Waxed Paper Association
Lincoln Liberty Building
Philadelphia, Pa.
Geo. J. Lincoln, Jr.

ADVISORY SERVICE: This organization has proper standard requirements for packaging and standards on quality, weight, etc., for waxed and closely related papers.

Cooperage Industries of America, Inc., The Associated
411 Olive Street
St. Louis, Mo.

PERIODICALS: *The Wooden Barrel*—monthly.

PUBLICATIONS: "Grade Rules and Specifications covering Tight Staves and Heading."

"Grade Rules and Specifications covering Slack Staves, Heading and Hoops."

ADVISORY SERVICE: On the construction and proper uses of tight and slack wooden barrels and kegs.

Cotton-Textile Institute, Inc., The
320 Broadway
New York, N. Y.
C. K. Everett, Manager, New Uses Section

PUBLICATIONS: Reports of service and market studies.

ADVISORY SERVICE: Sponsors service tests and experiments with cotton bags and cotton fabrics for packaging purposes.

Folding Paper Box Manufacturers Association, Inc., The
2 Lafayette Street
New York, N. Y.

ADVISORY SERVICE: Maintains a committee to prepare recommendations as to ways and means of conducting research work.

Freight Container Bureau
Association of American Railroads
30 Vesey Street
New York, N. Y.
Edward Dahill, Chief Engineer

PUBLICATIONS: Numerous bulletins and pamphlets on the economical and efficient methods of packing and shipping various commodities.

Issues three tariffs (a fourth in preparation), giving specifications for containers for fresh fruits and vegetables and loading rules for same. Items for insertion in these tariffs or changes or cancellations are published in dockets on which public hearings are held. Dockets are issued in January, May and September.

Glass Container Association of America
19 West 44th Street
New York, N. Y.
E. G. Ackerman, Assistant Business Mgr.

PUBLICATIONS: Bulletins on packing food products in glass.

Glazed and Fancy Paper Manufacturers' Association
902 Union Trust Building
Providence, R. I.
Arthur A. Thomas, Executive Director

ADVISORY SERVICE: Acts as a clearing house for manufacturing and marketing problems through personal and group committee contacts. Maintains a Statistical Bureau, a Registration Bureau for designs and trade names and a Credit Bureau.

Manufacturing Chemists' Assn. of the United States
608 Woodward Building
Washington, D. C.
Warren N. Watson, Secretary

PUBLICATIONS: Issues bulletins relating to the transportation of chemicals, with particular reference to the improvement of existing containers and the development of new containers.

National Canners Association
1739 H Street, N. W.
Washington, D. C.
Secretary

PUBLICATION: Directory of commercial canners.

ADVISORY SERVICE: Limited to members of association.

National Container Association
205 W. Wacker Drive
Chicago, Ill.
G. R. Browder, Treasurer & Traffic Manager

ADVISORY SERVICE: Information in connection with devising fibreboard packages.

National Paperboard Association
80 E. Jackson Blvd.
Chicago, Ill.

PUBLICATION: Booklet of Paperboard Standards, containing the Standard Gauge Lists for Boxboard.

ADVISORY SERVICES: Conducts a complete statistical service for members.

Cooperates with the U. S. Department of Commerce and other Governmental bureaus, as well as with the users of paperboard.

Information on freight traffic and freight classification subjects.

Maintains a forum for the consideration of pending legislation so that the industry may be informed.

National Paper Box Manufacturers Association
1106 Liberty Trust Building
Philadelphia, Pa.
William R. Kreeger, Secretary

ADVISORY SERVICE: Clearing house for information on set-up paper boxes.

National Paper Trade Association of the United States
220 East 42nd Street
New York, N. Y.
A. H. Chamberlain

ADVISORY SERVICE: This organization has done research on gummed tape, paper bags, etc.

Paper Bag Manufacturers Institute
369 Lexington Avenue
New York, N. Y.
J. A. C. Kavanagh

ADVISORY SERVICE: This association maintains information files on paper bags and special variations thereof.

Standard Container Manufacturers Association, Inc.
Post Office Box 4697
Jacksonville, Fla.
Russell W. Bennett, Secretary-Manager

PUBLICATIONS: Bulletins on standardization and simplification of production.

Bulletins on packing and marketing fresh fruits and vegetables.

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UP TO THE MINUTE?

Even as you read this PACKAGING CATALOG . . . . a score of advances are being made to change the packaging and display picture . . . . Monday a new machine may be announced . . . . Tuesday a new package application may be uncovered . . . . Wednesday a new package material may be developed. **YOU** Must Keep Close To Each Of These Developments As It Occurs . . . .

● YOU NEED MODERN PACKAGING EVERY MONTH!

For these advances, great and small, may affect **your** product, **your** business . . . . may mean **new** possibilities for your product . . . . may open up a **new** market to you . . . . may mean a more effective way of selling your product.

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For only through MODERN PACKAGING—the industry's premier publication—can you be kept abreast of these changes. MODERN PACKAGING is the authoritative source for **all the news** . . . . **all the facts** . . . . interpretive comment and criticism.

More than that—MODERN PACKAGING in each issue presents a mine of workable ideas and sound suggestions that you **cannot** afford to miss! If you use packages or displays . . . . if you sell them . . . . if you make materials or equipment that produce them . . . .

● YOU NEED MODERN PACKAGING EVERY MONTH!

Use this convenient subscription card. It will bring you 12 issues of this useful and valuable magazine . . . . including the great MARCH issue in which will be featured the winners of the current All-America Package Competition . . . . over 300 pages of valuable data . . . . itself worth many times the $5.00 subscription for 12 months.

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PRINCIPLES OF PACKAGE DESIGN

The designing and planning of packages is a strictly utilitarian art. The package has certain definite functions to perform and a package design may be judged—in the final analysis—only by the degree to which it performs these functions well or badly. It is true that a package may be viewed as an abstract work of art. Certainly many bottles and jars, many molded containers and printed or lithographed cartons represent artistic achievements of the highest order. But art, in such instances, is merely a tool of merchandising—one of the many factors going towards the making of a successful package. In some instances, deliberately crude "art" will make a better package or a more successful one.

Thus the process of package design must consist, first, in the analysis of the functions of a proposed package and, second, in the establishment of the necessary series of compromises which will provide the maximum possible number of desirable package functions within necessary cost limitations.



Package Functions

1. Transportation. The package must serve as a means of transporting a unit of merchandise from the point at which it is converted from bulk, through time, space and the hands of intermediaries, to the point at which the last bit of the product is utilized by the ultimate consumer.

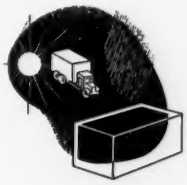
In the case of almost every product, the probable conditions of transportation can be accurately forecast. Freight classifications and rates are ascertainable in advance. Transport and handling hazards are predictable within fairly close tolerances and conditions of handling and use may likewise be anticipated. Thus the first requirement of any package must be "that it insure the safe transportation of the maximum possible percentage of all units packed at a minimum possible cost."



2. Measurement. An increasingly important function of the package relates to the measurement of the product. Many of our familiar terms of measurement—such as the bushel, the peck and the quart—originally developed as packaging terms. One of the major reasons why consumers prefer packaged to bulk goods lies in the fact that the package guarantees an accurate measurement upon which the consumer may judge the comparative value of competitive merchandise.

This factor of measurement is being increasingly regulated by local, state and national authorities. Thus the new Federal Pure Food and Drug Act specifically provides for notations of net weight or contents on food, drug and cosmetic items and may yet be interpreted as restricting the use of odd-size containers or containers not customary in a given trade or industry.

Rule No. 2 for the packager therefore reads: "Provide an accurate means of measurement of the product and capitalize, to the fullest possible extent in your design upon presence of this means."



3. Preservation. In varying degrees, all products are susceptible to certain hazards between the time of their manufacture and the time of their ultimate consumption. It is a major function of packaging to provide protection against these hazards.

The package designer will carefully canvass all possible hazards before deciding upon the materials, the shape and the structure of his proposed package. He will judge these hazards in the order of their probability and of their importance as deteriorating factors. He will then canvass the field of packages and packaging materials, securing those materials and methods of packaging which will afford the greatest possible degree of protection against the largest possible number of probable hazards. He will not try, in most cases, to achieve the ultimate in protection—100 per cent protection against every possible hazard. He will try, rather, to secure the maximum possible protection consistent with community health and well-being and consistent with cost.

Obviously, it is in the community's interest—and hence in the interest of the packager—that such products as milk or children's foods or, in fact, all items for internal home consumption—be afforded an extremely high degree of protection against contamination and germs. Yet, even in such instances, the package planner must consider cost and other factors such as, for instance, the time factor. The average paper or glass milk container is designed to provide fully adequate protection for its delicate product within the time limit of its probable use. No one would expect a milk bottle to preserve its

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Product under exposed conditions for a month or a year, for the very term "fresh milk" implies a limited time element. In contrast, the can utilized for condensed or evaporated milk is a package definitely expected to provide protection for an indefinite length of time and hence must be planned and judged accordingly.

Package protections fall under four main groupings:

a. Protection against atmospheric and external hazards. Here packages can be designed to give protection against such hazards as moisture, dryness, heat, cold, light, insects, rodents, etc.
b. Protection against "human" hazards—principally counterfeiting, tampering and pilferage.
c. Protection against transport hazards such as shock, breakage, leakage, sifting, dust, grease, scuffing, etc.
d. Protection against the product itself—where the product might react with the package to cause damage to itself—such as loss of flavor—or to cause damage to the package by grease penetration, moisture penetration, ink bleeding or in some similar manner.

Rule No. 3 for the package planner reads, therefore, "Provide the maximum number and quality of desirable protections against probable hazards consistent with probable conditions of use and with costs."



4. Display. The package is a tool of merchandising designed to present the product to the consumer in attractive light. Oftentimes the package contains a product of amorphous nature and one which cannot be readily visualized or seen. Here the entire impression regarding the product is one which must be conveyed by the package. In other instances, the package must disclose the product—through windows, glass walls, transparent cellulose walls or by other means—in the most favorable possible setting. Thus, whether the package be opaque or transparent, it has a major function—the favorable presentation of the product.

Display is not, however, limited to presentation. It involves, also, explanation of the product. The package must tell the name of the product—presenting this, by trade mark, color, lettering or other means—in a way that may be recognized by the consumer and may thus encourage repeat sales. The package must explain the use of the product. Sometimes a word will suffice, sometimes accurate and carefully compiled directions must be imprinted or labeled onto the container. Sometimes such explanations must be incorporated in the form of an attached or accompanying folder or booklet.

The package may further provide other data relating to the product. It may visualize, through pictures, the appearance of the product when prepared for ultimate use, as in the case of semi-prepared or raw foods. It may provide cross-advertising to other items manufactured by the same concern, or may suggest additional ways in which the product may be used.

Finally, the package must be visible and attractive under its probable conditions of exposure to the consumer. Too many packages are designed from a "three-foot viewpoint" and judged as seen at arm's length on the drawing board, although they will almost invariably be first viewed by the consumer at anywhere from ten to thirty feet of distance.

An additional and increasingly important display factor hinges around the appearance of the package in advertising. Since recognition of the package is important if advertising is to be capitalized upon, the provision of certain visual elements which the consumer may correlate with the impressions created by advertising becomes an important element in package design. Even radio advertising—where no direct vision is involved—can be made to tie in to advantage with a properly designed package. Thus the announcer may tell the consumer to look for "the big blue box," whereas he may have difficulty in phrasing an easily recognized and easily remembered description of a very complicated and multi-colored container having no central recognition point in its design.

While still a bit over the horizon, the possibilities of television have interested some more far-sighted packagers who have conducted investigations into the probable effect of this medium on package design and particularly—because of distortion and color limitations in television—upon package coloring.



5. Utility. Convenience in use and in handling can win valuable dealer and consumer good-will for packages and their sponsors. The designer will do well to make certain that his package is of a type acceptable to the dealer and his clerks. The package must be stable, must resist various forms of manhandling, must be easily lifted and carried, must stack easily and, in other ways, make for a minimum of effort on the part of the dealer in maintaining his stock.

When lines consist of numerous items, provision must be made for ready identification, by the dealer, of every item in the line. When products are of types infrequently sold and therefore relegated to high-level or low-level shelves, the package must be designed to resist deterioration due to dust and to permit easy identification from either position. Packages more frequently sold and, hence, moving through a store in a constant stream, may often gain dealer convenience features if they are dated or otherwise identified as to freshness. Numerous other

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factors peculiar to every individual product will occur for consideration when design is undertaken.

The convenience of the consumer is of perhaps even greater importance. Here accessibility of the product is a major factor. The consumer tends to forget the value to him of the protection afforded by a secure closure, if this closure cannot be easily opened.

Packages for products which are consumed over an extended period of time must provide not merely ease of opening, but convenient and safe closure as well. Products which are carried in the purse or pocket must be free from sharp edges, secure against spilling and packed in odor-proof, leak-proof containers. Once again the list of desirable utilities will vary with every product packaged, but all of these are well worth studying for each contributes towards inducing repurchase.

Frequently repurchase of a particular type or brand of product may be insured by the use of a "premium utility" in the form of a dispenser, holder or other device designed for use in conjunction with the product and sold or given away at the time when the consumer first utilizes the product.

Often utility values may be gained with only slight additional cost or with none at all. An instance of this is found in the food packaging field, where housewives have been known to purchase products repeatedly because of the inclusion upon the package of recipes, changed from time to time, to re-awaken housewives' interest in them.

Breakfast foods and other products consumed by children achieve utility through the use of otherwise waste portions of the package as games of interest to the children, i.e., as cut-outs, maps, pictures, etc.



6. Re-use. Certain classes of products can profitably utilize re-use containers. These are usually fairly expensive—though not necessarily always so—and serve, in addition to their function as a package—as an actual product in themselves. There are two types of re-use containers—those used in conjunction with the product itself and those sold with one product and designed for use with another.

The first class of re-use container will be seen to include such items as the razor box of molded plastics, the gift cigarette box of wood, the glass or chromium cake tray, etc. Frequently a utility container of this sort provides the only sensible means of packaging products consisting of a number of units—witness the metal, plastic or wood box used for draftsmen's tools.

Re-use containers of the second or "premium" type may be widely varied in nature. The decorated glass tumbler used for cheese, peanut butter, etc., is an outstanding instance of this sort. Through its use, at only the slightest additional cost, manufacturers are able to induce voluntary repurchase on the part of consumers who desire to secure a complete set of such tumblers. Numerous other types of premium re-use containers will come to mind. Particularly in conjunction with Christmas merchandise—men's belts and suspenders, women's stockings, candy, etc.—such containers have achieved a wide vogue as a means of identifying a product as a gift and as a means of providing a lasting quality to a gift which would otherwise be consumed in short order.

Package Selection Factors

The foregoing paragraphs have listed a long series of package functions. These, obviously, do not all apply to any given package in equal degree. The packager and the designer in planning a package must consider each possible means of meeting or satisfying a package function and evaluate it by a number of factors.

Cost vs. function. The amount which a consumer may reasonably be expected to pay for a package varies in different industries and with different products. It varies, likewise—even in the case of identical products—with the market towards which the product is directed. Yet, in every instance, there is some fixed range of limitation beyond which—and often below which—package costs must not go. Often this range is determined by competitive considerations. More frequently it is a plain matter of common sense. Yet every proposed package feature designed to satisfy a package function must be judged and selected or rejected only after the most careful consideration of costs.

Production convenience. All too often designers have been prone to ignore this element in planning packages. Since most package designs nowadays represent redesigns of earlier packages, they usually involve the re-use, in part or in whole, of existing plant facilities and of existing dies, jigs, molds, etc. Even where new package producing or package filling and sealing equipment is to be installed, the package must be planned to meet the requirements of the machine. Each type of container and type of machine imposes its own restrictions upon the shape, size and materials of a package and the wise designer will closely correlate any planning of a package with the limitations broadly sketched here and with those applied to the particular production facilities applicable to the proposed package.

Handling convenience. An additional factor involving the selection or rejection of elements of a package design will be found in the element of handling convenience. In respect to package handling in the plant, this will involve such considerations as fragility, ease of filling (through wide or narrow neck bottles, etc.), ease of packing, speed of handling by hand and machine operatives and similar considerations. In respect to dealers and consumers, similar questions will arise. To take a single instance, an otherwise suitable dispensing closure was found, on examination, to so change the shape of a cylindrical package as to require roughly 60 per cent additional space in shipment and on

display. The designer was therefore forced to consider whether the utility of the dispensing unit justified the extra expense and inconvenience involved in the increase in package size.

Often such elements as the stability of the package, the ease with which it may be gripped under probable conditions of use in the home, etc., will determine whether a given design shall be utilized, discarded or slightly modified.

Competitive and habitual factors. While a new package usually represents a breaking away from tradition, it is often a wise caution on the part of the designer to consider trade customs and consumer habits. If all competitives of a given product are packaged in pints and quarts, this may provide sufficient reason for determining in advance that the new package must likewise measure one pint or one quart. It may, on the contrary, justify the provision of a new package which will measure one-half pint or one gallon.

The traditional package for furniture polish—to select a single instance—has been a tall, thin glass container, with a comparatively narrow neck, providing little stability but great ease of hand gripping and economy of application of the product to a polishing cloth. A designer planning a new furniture polish package must determine whether a squat container which will provide greater stability will be desirable or whether the gain in stability will not be more than counterbalanced by a loss in convenience in handling and in the apparent size of the container.

In certain fields, trade customs operate to rigidly restrict the package designer's freedom of action. Some items are traditionally packed in dozens, some in tens, some in twenties and only a rash designer will arbitrarily step out beyond such traditional limitations without adequately surveying the field and determining whether such off-size and off-quantity containers will be acceptable to dealers and to ultimate consumers. An otherwise completely acceptable package will sometimes meet with pronounced consumer resistance simply because it differs in color, texture, shape or material from those traditionally used in a given field. Sometimes the provision of conveniences and protections of great value to the consumer will actually serve to inhibit purchases because such conveniences are achieved by means which run counter to habits or tastes in the field. An instance of this sort is found in the sealed envelope gradually coming into use for hosiery—a type of package which has had to win an uphill fight against the traditional habit of sales clerks and hosiery purchasers to examine each pair by running the hand into each stocking.

Design Procedure

Package design procedure naturally varies from company to company and from problem to problem. For most companies package design represents an occasional rather than a continuous event. For this reason, most companies seek outside aid and advice. The average executive does not consider himself either a technician or an artist and hence finds it wise to consult with those who can provide either or both forms of advice.

Two types of package designing service are available. The packager may consult an independent designer—an individual or organization—whose principal activity is to plan packages and, consequently, may be relied upon to have an excellent background of information and experience relative to the elements of package planning detailed in the foregoing paragraph. The services of such designers, being a professional service, is usually available on a retainer or on a by-the-job fee basis. Occasionally such services are available on a royalty basis, although in most instances neither the packager or the package designer will find this last method an equitable means of payment.

The packager may, on the other hand, seek the aid and advice of the designing division maintained by many of the package-supplying organizations. The size of such departments and their ability to aid the packager, naturally varies from company to company, but it may safely be said—in respect to most of the larger package suppliers in each division of the package manufacturing industry—that such organizations are unusually well equipped to provide technical advice and are often equally well equipped to provide artistic or merchandising services.

In some instances, such design service is provided without fee, the cost of maintaining the designing department being absorbed by the package manufacturer as a general overhead charge. In other instances, specific fees for design services are arranged for in advance.

In many cases, packagers find it convenient to utilize both the independent and the company-maintained designer. The independent designer is in a position to achieve a very close working relationship with the company which hires him and thus to study the specific problems of that organization, particularly in respect to merchandising factors, intensively. He can, however, very easily lean upon the technical knowledge possessed by the designing and engineering divisions of the package-supplying firms who are, by their very nature, best able to analyze the practicability of a package from a production standpoint.

When either or both types of designers are utilized, it is well for the packager to lean upon a third group of advisers as well—his own production staff and the engineering departments of the package machinery manufacturers. Any checking or censoring of package plans which these people may be permitted to make in advance will oftentimes provide a continuous saving in production costs when the package is finally adopted.

The selection of a designer being the first step, adequate research is obviously a second essential in any package design operation. The designer must be provided with all necessary data as to the nature of the product, the manner in which it is sold, the channels through which it is sold, consumer and dealer habits, trade customs, etc.

Frequently it will be found necessary to conduct field researches to determine accurately many of these factors.

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It is surprising, in fact, how many of these facts are unknown to companies which have long been operating in particular fields. Thus the period of package redesign often provides an opportunity for general research in the fields in which a package is sold which may prove of great value to sales and advertising departments.

Armed with the necessary data as to brand, product and market, the selected designer will be in a position to proceed with planning the package. Experienced packagers frequently take great pains to make certain that any proposed designs are subjected to the criticism of all departments which will later be called upon to produce, distribute or merchandise the product. Sometimes this work is generalized through a "packaging committee." The tendency of such committees, however, to resort to one-sided and perhaps arbitrarily negative criticisms should be cautioned against, since such criticisms often reflect no weakness in the proposed package but, rather, an element of inertia and unwillingness to change on the part of the department making the criticism.

Frequently proposed packages are reproduced in small quantities and submitted to jobbers, wholesalers and retailers and even to selected ultimate consumers, to secure the reactions of these parties. Here, once again, the utmost caution is indicated. While careful research will provide much valuable information, careless efforts or researches not properly worded will serve merely to distort the picture and to mislead the designer and the sponsor of the package under consideration.

Design Testing

It is not always possible, of course, to test a new package prior to adaptation. Frequently decisions must be made and substantial charges incurred prior to the creation of a package. This is particularly true where expensive engravings, dies, jigs or molds must be purchased before even a single package may be created. Certain factors, however, such as color schemes, may on occasion be tested by adequately trained research authorities with a minimum of expense. To the extent that such tests permit the selection of the package best able to secure substantial sales and permit such selection prior to the undertaking of substantial commitments for dies, molds, stocks of packages, etc., they are, of course, extremely valuable.

However, the importance of package testing in the form of tests for consumer reactions, has probably been over-emphasized in the past. The science of testing the consumer is not yet an exact science and the cost of conducting tests over an adequate sample of the proper market, sometimes proves as great, if not greater, than the cost of actually producing the necessary minimum quantity of packages which would be required to place the product on the market.

Another form of test and one more usually followed by most companies involves the distribution of the new package in a limited territory. Its acceptance by the consumer in this territory will be taken to justify extension, step by step, to other regions. Its failure of acceptance—if such occurs—will serve to provide reasons for either entirely rejecting the new package or for modifying its form. The other established markets for an existing product will not be disturbed if such tests are carefully restricted and carefully carried out.

Tests of packages by either of the means discussed above must be recognized as falling somewhat short of 100 per cent accuracy—in most instances—because other factors tend to muddy the waters. Sales increases attained with the introduction of a new package may sometimes be due in part to increased interest on the part of salesmen, jobbers, dealers or consumers—a form of novelty interest which will later wear off and disappear. Contrariwise, a relative sales increase may be disguised and appear as an absolute decrease because of a change in business conditions or some other factor which, simultaneously with the introduction of a new package, tends to restrict the market for all products of this sort. In this respect the limited territorial form of testing provides opportunities for comparison between territories and thus affords, perhaps, a more accurate measurement of sales results.

Initiating the Package Change

Since most package designs are today redesigns, the packager is confronted with a major problem, when a decision is made to replace an old package with a new one.

Between the design and production of a new or replanned package and its introduction to the consumer lie a series of merchandising problems which, while applying with differing emphasis to different situations, nonetheless appear to greater or less degree in every instance of such package change. These may be summed up as:

(1) The problem of physical distribution—of getting the new package into the store.
(2) The problem of minimizing or eliminating losses in disposing of old stocks and the kindred problem of speeding up the disposal of such stocks.
(3) The problem of retaining all possible news value pertaining to the change and of capitalizing upon the change both with the jobbers, dealers and sales clerks, and with the consuming public.

Within the compass of the first problem, arises the question of method to be followed in introducing the new merchandise. Should it be introduced simultaneously in all localities? Should the design change be made in several stages or should it be achieved in one jump? Should the change be made when dealer stocks are low or when they are high?

The method of greatest factory convenience would naturally call for making the change by the simple expedient of shipping out all of the old packages in process and in stock and then starting to ship the new merchandise as ordered. However, this method would result in tremendous confusion on the part of both jobbers and dealers, in the creation of "shelf orphans" in the person of old packages lying on shelves while the new were being sold. Such unequal dates of introduction through-

out the territory served would create dealer ill-will (among dealers having stocks of the old package) and result in complete loss of all the news and advertising values of the new package.

Hence, good practice has always called for an attempt to *achieve simultaneous introduction over a large territory if not over the entire national market*, even though this may involve additional trouble and expense.

Equalization Method

To achieve this, several methods are available. In the introduction of its Grape-Nuts package some time ago, the General Foods Corporation adopted the "equalization" method—shifting stocks among jobbers so that each would have an absolute minimum of old merchandise on hand at the time for introduction of the new package. Such "equalization" has also been practiced among dealers; is, in fact, practiced daily in the case of perishable products such as bread, but its most practical application when a package change is involved is among jobbers. It is best used when the product under consideration is light in weight, thus minimizing freight and packing charges; when jobbers are close together, reducing the length and cost of the haul; and when the demand for the product is fairly steady. In this way an approximate date for the exhaustion of all stocks can be set in advance.

Stock Control

A second—and more usual—method calls for stock control initiated by the manufacturer's sales force. Here the salesman, being aware of the dealer's usual sales volume, is called upon to hold his orders down to the point where all stocks of the old package will tend to become exhausted at precisely the moment when the new package is to be introduced.

While this method is the one most easily practiced, it suffers from a number of drawbacks. First of all, it converts the salesman into a "non-salesman"—forces him to cut down orders rather than to encourage their increase in size. Secondly, it involves the danger of stock exhaustion in some stores prior to the date of introducing the new package. The loss of sales may here be negligible, but the loss of good-will on the part of the dealers who lose the sales (because of the over-ruling of what they will maintain was their better judgment) is often too great to be risked.

In spite of its practical and psychological disadvantages, this method is popular because it minimizes the amount of stock left after the new package has been introduced. It throws the major burden of effecting the change upon the dealer's shoulders instead of on those of the manufacturer.

Exchanging Merchandise

Another means of effecting a package changeover calls for the exchange of old merchandise for new at a given date. This is very seldom followed because it would involve a tremendous loss in freight, damaged goods, repackaging, overhead and other charges. In fact, confronted with the alternative of repackaging already-packaged merchandise and throwing it away, the average manufacturer will find the latter less expensive.

However, the guarantee to purchase left-over stock may be combined with the stock-control method to achieve a solution better than either method would afford if used separately.

It will be seen that all these methods, with their varying advantages and disadvantages, involve a certain amount of friction and extra work on the part of both manufacturer and dealers. This can, of course, be minimized, by careful planning. However, because of this friction and extra work, the balance is all in favor of reducing package changes to a single operation. If the method of gradual change—over several stages—is followed, dealers will be called upon to exercise more effort than even the most understanding of them will consider worth while.

When to Make the Change

The question of making the announcement of the package change will naturally arise whenever such a change is considered. Such an announcement must break down into two parts—that going to dealers and that intended for the general public.

In the case of dealer announcements, best practice calls for six to eight weeks' notice of a change. This permits of the dealer's making plans for disposal of old merchandise, for stock control, and for rationed purchases. Any longer period will tend to take away a great deal of the dealer enthusiasm when the new package finally makes its appearance.

The question of regional or national changeover has its proponents on both sides of the fence. Those in favor of a regional change point out the possibility of moving merchandise gradually from east to west, or north to south, in "equalizing" stocks. Those in favor of the national changeover, point out the overlapping, the loss of news value in this day of wide travel, the long time necessary, and the need for maintaining a factory line for both old and new packages. The odds seem to be in favor of a national change for all nationally advertised products, except those which have a moving season, such as sunburn lotions which sell earlier in the south than in the north.

It may seem, from the foregoing, that the introduction of a new package involves so many hazards as to make its consideration something to be long delayed. Yet such is not the case. Difficulties have here been pointed out because they must be appreciated to be overcome. But the manufacturer who hesitates because the difficulties exist, has merely to look to the number of others in his field, who have easily overcome these difficulties, to understand that advance planning can reduce them to negligible disadvantages which cannot possibly counterbalance the advantages to be gained when a package change is called for by sales conditions.

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COLOR

by GEORGE WELP*

Color is a sensation which requires no conscious struggle of the intellect to appreciate. It does more than stir up objective stimulations.

Because colors achieve naturalness unattainable with plain black and white, colors are important as a selling tool. A picture of coffee has much more sales appeal when printed in its natural, rich brown, than when reproduced in cold, unreal grays and whites. Color adds life! It imparts a reality and an animation that not only attracts attention but increases the appeal.

Color classification and measurement, until very recently, has been a rather indefinite business. But there is one exact yardstick which is of use, and that is seeing what color can do for your sales.

Merchandising men are no fools. They are quick to drop non-profitable packaging techniques. So there is no surer proof that color does sell package merchandise than the tremendous increase in the use of color.

During the past few years package re-styling which had at one time occurred only once in the lifetime of a company now often happens as frequently as every year.

The effective use of color in packaging is unquestionably worth all it costs when it is right. But it must be right. The designing of color for packages involves a fundamental knowledge of color, familiarity with color relationship principles, an understanding of the mechanical limitations of presses, papers, and inks. The principle of color relationship is the subject closest to the heart of the man about to redesign his package. The selection of colors to suit a given design is important.

However, the packager should keep definitely in mind that the accurate definition of design is *intent* or *purpose*. Obviously, therefore, color relationships to suit every purpose cannot be reduced to a set of hard and fast rules. To satisfy the standards of good taste, the talents of a reputable designer must be employed, but beyond the standards of good taste, the demands of good merchandising must always take precedence. This is not to advocate atrocious design or bad taste in either design or color, but it most definitely discourages the use of good taste in either design or color merely for the sake of satisfying some individual's esthetic opinions.

When everything on color relationships is said and done, the test which a good color scheme must ultimately meet is the degree to which it increases demand for the product it embellishes. It will do no good to explain that the package is a perfect example of complementary contrast if declining sales are in uncomplementary contrast to last year's figures.

Various systems for notation and color relationships have been put forward. Each has its defenders and disciples. Out of these can be culled a few dependable ones which are subject to the least controversy and which can be employed by the novice with only a limited knowledge of color. The first color need of the package designer is a description of a single color.

No matter what system of color description is used, it must acknowledge the fact that all color possesses three characteristics. Therefore, to describe color completely as it is seen by the eye, it is necessary to use three dimensions. Just as in measuring a box we give its length, width, and depth, so too in measuring color, we include three dimensions. *Hue*, *Value*, and *Chroma* are terms most often used to describe color as seen by the eye.

Hue is the quality by which we distinguish one color from another, as red from yellow or yellow from blue. Value is the lightness or darkness of a color as compared with a scale of grays from white to black. Chroma is the strength of a color, or the quality by which we distinguish a strong color from one that is "grayed."

To apply these three dimensions we first describe the hue of a color, as green, then designate value, or the lightness or darkness; and to complete the description, give its chroma, whether it is a rich or a grayed green.

Primary considerations in the selection of package colors are visibility and legibility. The principle to be observed here is that of sufficient contrast in value. Value differences without regard to hue or chroma may make or mar the result. Value contrast will make lettering or type, for example, legible or illegible. A color of middle value will be least distinguishable on a color of equal value, and the greater the contrast in value, the greater the legibility.

In this connection, bear in mind that simultaneous contrast affects value contrast. A neutral gray of middle value appears lighter against black and darker when contrasted with white. The same thing holds with any given hue.

The question is frequently raised in connection with a package design, "Is it in color balance?" There is a principle known as the doctrine of chromatic equivalents which aims to establish color balance in a design. Based on the fact that white light is composed of all the spectral colors in certain proportions, this theory maintains that in order to be in perfect balance, the chromatic elements of a design should be adjusted so that if all the constituent colors were mingled on the retina, a neutral gray would be achieved. No hue would then be noticeable. This can be demonstrated by placing segments on a disk in the proper proportions and spinning them rapidly on a wheel. If they appear to the eye as a sensation of neutral gray, the design is said to be in balance.

To achieve this in design, the areas of one color to be used with another or the areas of many colors in combination should be determined by the power of the colors

* The International Printing Ink Corp.

employed. For example, if we wanted to use a combination of a middle value yellow-red of fairly strong chroma with a blue of a low value and weak chroma we would use a much larger area of the blue than of the yellow-red. In all principles of color relationship areas of white, black, and gray are considered neutral and are ignored.

The general principle covering the areas of color in a given relationship may be stated thus: A color of stronger chroma and higher value should occupy the smaller area and a color of weaker chroma and lower value should occupy the greater area. This does not mean that a good design could not be built using a reverse method but it is fairly safe to follow the rule.

In selecting colors for various purposes in packaging design, three methods are suggested:

1. By following the general rules for color harmony and color contrast.

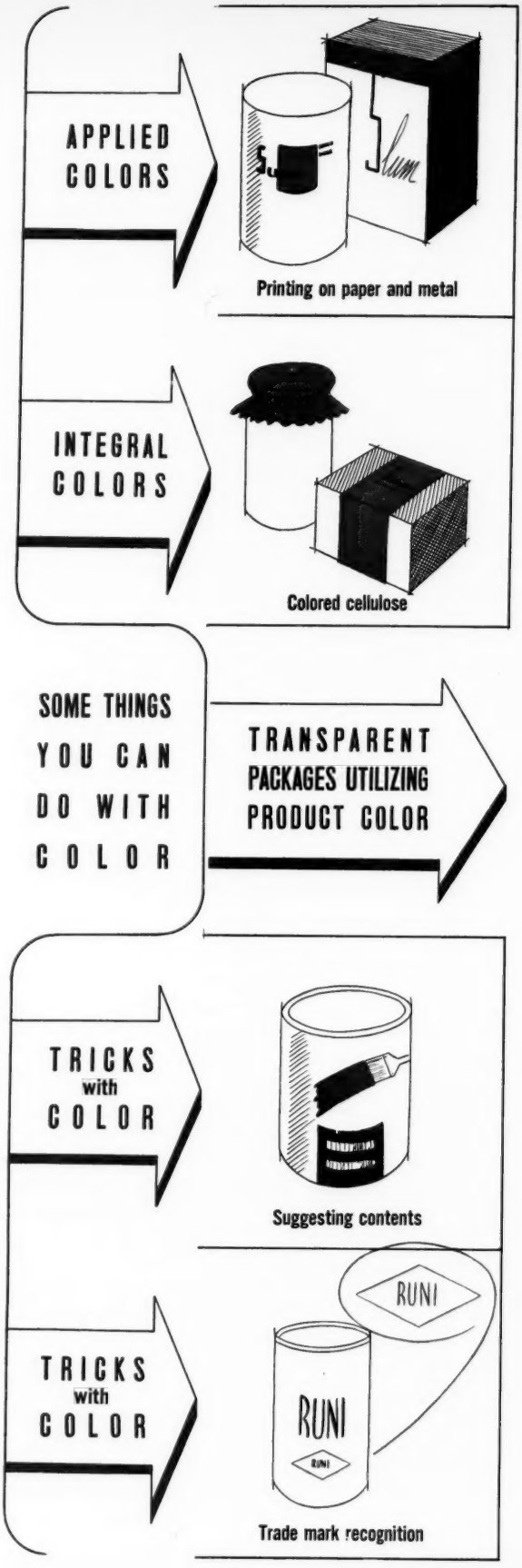
2. By choosing colors appropriate to a dominant color note which has already been specified in your design. It is frequently a condition of a color selection assignment that one color is already specified and the rest of the color scheme must be in harmony or in contrast with it.

3. By choosing original color combinations through pure experimentation. This may lead to unsatisfactory results, and it is here that it will be found valuable to check your results against the general principles described in this article and shown in the illustrations.

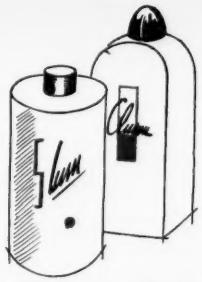
Remember that while genius may work in violent color combinations, those of lesser talent should not flirt with the disaster which often accompanies such experiments. Satisfactory results may be achieved if we use colors of low values and weak chroma for our larger areas and contrast the smaller areas with colors of high value and strong chroma. While this safe rule may not always produce real distinction in the use of color, it will avoid many atrocities.

There are other considerations besides color harmony or color contrast in the selection of color for packaging. Ask yourself these questions. Is the color appropriate to the product packed? Is there resistance to certain colors in your particular field of selling? Does the color give high visibility on display? Is the name legible and the typography simple and easy to read? Is the color distinctive from competitors' packages? Does the color selected help to make your package easily remembered? Does the color help or hinder the design? Have you selected colors which are capable of conversion into inks which will withstand the chemical action of the product; impart neither color nor odor to the product; will not rub, fade, or check, and do full justice to the original design?

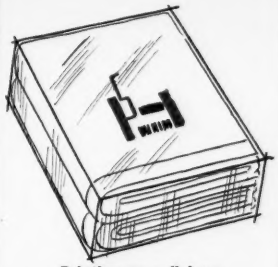
If the colors you have chosen successfully meet these qualifications, you have done your job well.



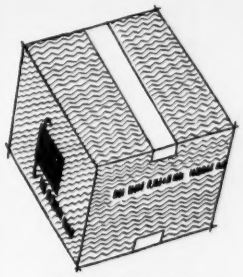
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Printing on glass and plastics



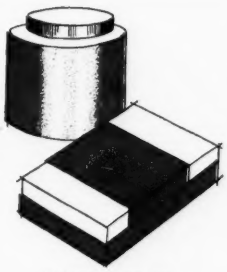
Printing on cellulose



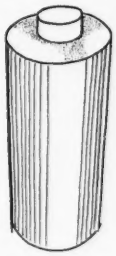
Coloring liner board



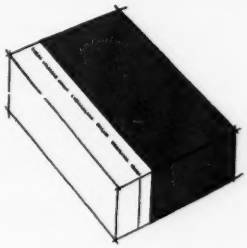
Colored box papers



Colored plastics



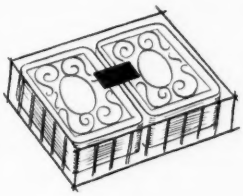
Colored glass packages



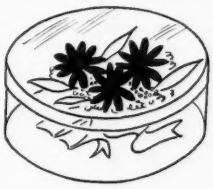
Colored fabrics



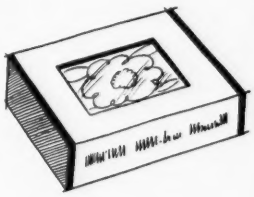
Colored ribbons and seals



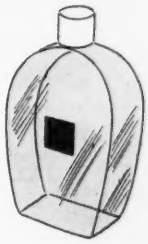
Clear plastics



Clear cellulose



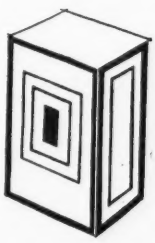
Clear windows



Clear glass



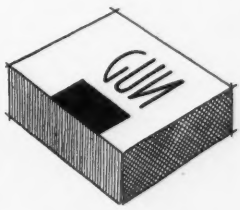
Enlarging apparent size



Reducing apparent size



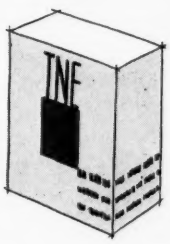
Identification



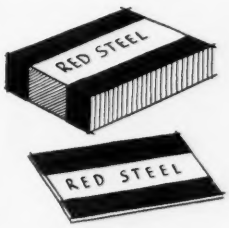
Stressing features



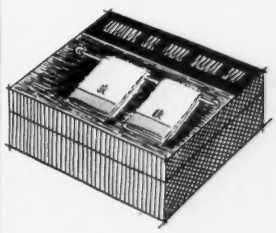
Colors to create emotions



Color to intensify product color



Suggesting a quality or ingredient



Color-photo packages

PROTECTIVE PACKAGING

PROTECTION BY DESIGN

by **WENTWORTH WEEKS***

The designer cannot hope to be familiar with *all* the intricacies of *all* the laws applying to packaging and packaging protection. He cannot step into the field of the patent attorney or departmental authority, any more than he can carry out the role of chemist or engineer or doctor. Yet he must be familiar with at least the fundamentals of all these in order to execute his part of the work satisfactorily. No aspect of the packaging picture is more pertinent and relevant to the development of successful design than that generally lumped under the title "Legal."

Obviously, the design which cannot be used is worthless. Equally obviously, the design readily susceptible to imitation or, conversely, infringing upon the rights of another is equally a waste of his client's money. The path which must be trod is a narrow one, filled with pitfalls and best traversed under the guidance of competent attorneys.

It is not sufficient to consider the legal status of packaging as a fixed and rigid set of limitations within which the work is initiated or to which the work must conform upon completion. To do the first not only limits the possibilities for a sales-producing design, but handicaps every step of the way. Where there is no available source of appeal, no means of checking upon each step as taken, the longest way around becomes the only way. In the second case, blue penciling a design or making didactic changes can mutilate beyond redemption.

Most of the laws affecting the package have a certain flexibility. Consideration concurrent with the develop-

* Package Designer



Contrasts between designs having weakness or strength in respect to protectability. **1.** Weak because the arrangement of the panels is in no way distinctive. **2.** Strong because of the manner in which the shield-shaped panel is worked into the top and bottom bands. **3, 4.** The former is far weaker than the latter since its copy panels have no unique or distinctive arrangements. **5, 6.** The elaborate illustration of the former can be easily confused with competitive designs, whereas the latter is stronger because its simple silhouettes are distinctive.

ment of the design takes full advantage of this fact. If one intention of the designer is not practical from a legal standpoint, it may be changed before the design develops too completely; if a legal point must be established in the design, the designer can make sufficient allowance.

This is particularly true in the protection of the design from the punitive efforts of competition. It is entirely possible to develop a design strong enough in itself to establish common law rights more far reaching and lasting than any attainable by a weaker, more casually conceived design, protected by every available legal recourse. A corollary is that the same means which make for the simplification and individuality of a good design facilitate the protection.

This puts the designer on his mettle. To follow the blundering herd into current styles and typographic fashions develops a package easily imitated and almost impossible to protect. Mere sterile typographic organization, however clean and simple, or mere bands or planes of color, however effective in themselves, are apt to lack the visibility and the protectability of designs incorporating characteristic shapes or mass arrangements. Disguising imperfection of basic design by multiplicity of colors or over-elaboration—all too frequently acclaimed as high art—is equally weakening.

The designer will best start with material already protected, and proceed from that fundamental point, developing the package design as a setting or amplification of this element. All too frequently package design is in direct competition with the basic trade mark or this mark, accepted as a necessary evil, is tucked away in some obscure corner. The result is either the establishment of two competing visual definitions of the product's identity—package design and trade mark—or the substitution of a secondary means of identification which dominates the mark itself. The trade mark is synonymous with the product; the package design is also the external identification of the product. Merging and coordinating both into a single entity not only emphasizes one image instead of two, but makes it many times stronger. Such a design virtually defies competition and the factors which give it strength from a legal standpoint are equally strong in developing customer recognition.

Frequently, the designer can contribute greatly to force and recognition value by turning the trade mark, which has been registered as a word or an ordinary line of type, into an active symbol expressing or amplifying the name or use of the product. One line of type looks much like another line of type. Combining a simple form or illustration with this name, utilizing a graphic style of lettering or arranging the lettering so that it conveys a particular meaning or motion, underlines its true intent and makes it doubly effective.

By steering a course clear of the usual, or what is "being done"—by developing a package design strong and simple, radiating from or serving as a supporting background for the registered product name—a sound basis of fundamental common law rights is established, automatically protected under the Fair Trade Laws.

The field of Government regulation also helps or



7. The lettering alone is weaker, from the protection of design standpoint, than the lettering enclosed in the scroll. **8.** The straight letters are weaker than those that climb the black pyramid. **9.** Weak, stronger and stronger still—in descending order—are these letterings, in direct ratio to their difference from the most common way of setting type.

hinders the designer in his task. Rapidly increasing restrictions placed upon industry step beyond the letter of the law into the realm of implied meanings. A carelessly chosen word, a phrase displayed too prominently or not prominently enough, poorly chosen illustrative or descriptive material can do a well-intentioned client immeasurable harm in the eyes of the law.

Certain Government bodies, the F.A.A. for example, insist upon the submission of labels before they are put into use. But for the most part there is no direct means of establishing the fact that "this" will get by and "that" will not, until a seizure or confiscation of the marketed product upsets all merchandising and distribution plans. The fact that John Jones or someone else has done the same thing on a carton or label is no more excuse than ignorance in the eyes of the law. Admittedly, the designer cannot be familiar with all these ins and outs; he must work hand in hand with some

authoritative source of information. But working hand in hand, rather than in opposition or at cross-purposes, is important for the development of the most effective design possible under regulations existing in a particular field or industry.

All of these legal factors are closely interwoven with every step in the development of every design. The designer cannot take orders from the literal minded lawyer and turn out a good design. But he can work with the lawyer to develop a finished result with inherent legal rights—easily protected against competition—in full accord with restrictions imposed by the Government. Factors making it satisfactory in the eyes of the law almost certainly make it more appealing to the eyes of the possible purchaser. The layer of printers' ink can be both Joseph's coat and armor plate.

PROTECTION AGAINST COMPETITION—NATIONAL

by HUGH E. McMORROW*

Once the manufacturer has developed a package to his own satisfaction and, he hopes, to the satisfaction of his customers, he feels a very natural desire to protect his investment in time and money from others. More exactly, he wishes to merchandise something which no one else is permitted to sell, to possess the entire right to something wholly unique. He must, therefore, resort to the legal means of protection made available by the United States Government through the United States Patent Office and, to a minor extent, through the Library of Congress.

There are certain facts which he should clearly realize before he undertakes such protective measures. First, the protection furnished is purely passive rather than active. It is an establishment of his rights in the eyes of the law. Only he can call attention to infringements of those rights; the Government is not a policeman, but a court of appeal. Second, the protection provided by the United States, insofar as trade marks are concerned, applies only to articles used in *interstate* or foreign commerce. Third, all these means of protection and certain even more elementary rights accorded by common law, are based upon the *actual use* of the trade mark upon the goods. Continued sale of a product under a given name, design or type of package sets up the strongest possible claim to the means of identification used. Fourth, these means of protection can only be utilized to full benefit with the assistance of a competent patent attorney; frequently the extent of this protection depends entirely upon that one man's individual ability and grasp of the complex situation.

The United States Patent Office provides facilities for registration of trade marks—that is, names or symbols or a combination of both—used by any manufacturer to identify a particular product.

The attorney selected will be able to advise, from his knowledge of the Trade Mark Law and from a search which he will conduct through the registered and published marks in the Trade Mark Division of the United States Patent Office, whether or not the mark is available for use. If the same mark, or any mark so closely resembling it as to cause confusion, has been registered by any person or firm on the same class of goods, or merchandise of the same descriptive properties, then the mark is obviously not available.

A mark already registered may often be purchased for a nominal sum, even if still in use. If not in use, it is possible to prove abandonment and thereby remove the bar to registration. Abandonment, however, is largely a matter of intent and sometimes difficult to prove.

There are many cases of trade marks in use by manufacturers who have secured neither Federal or State registration of the mark. In this event, the manufacturer who seeks to register his mark can only ascertain whether or not such an unregistered mark is in use, by his own observations in the particular field or by consulting with experts in that field.

In this connection, it should also be borne in mind that even if the Patent Office considers the mark registrable and passes it to publication, any persons, firms, etc., who may deem themselves injured by the granting of the registration, may file an opposition, whereupon evidence may be presented and a decision rendered by the proper tribunals of the Patent Office. This decision may be appealed to the courts for final decision.

Even after a registration has been passed to issue by the Patent Office, and the registration has been issued, a petition for cancellation may be filed by any persons, firms, etc., who may deem themselves injured by the registration and procedure similar to that in filing oppositions is followed.

Many manufacturers and laymen believe that, once they secure a Federal Trade Mark Registration, their rights are fully protected and nothing further need be done. However, the Government, of its own initiative, will take no steps to halt an infringer of a patent or trade mark. It is incumbent upon the owner of the infringed patent or trade mark to bring suit in Federal Court. When all the facts are presented at the trial and the patent or trade mark is found to be infringed, the Court will then issue a restraining order and probably arrange an accounting for damages and loss of profits.

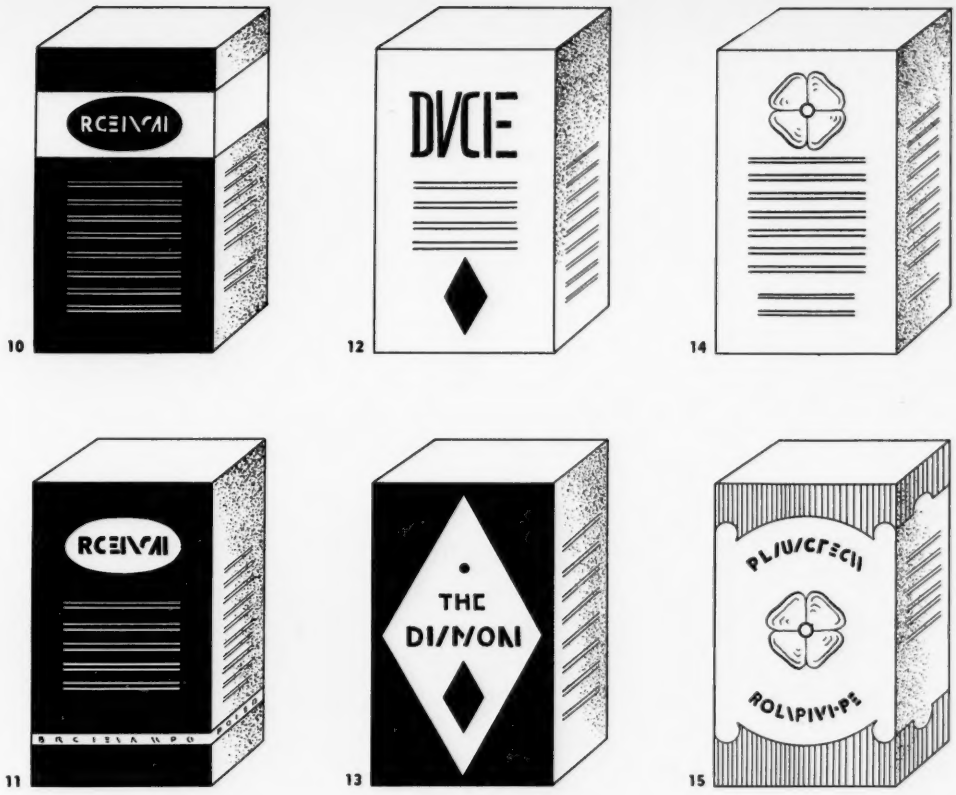
If the construction of the container or package is novel, a mechanical patent may be secured, granting an exclusive monopoly to the inventor or his assignee for the term of seventeen years from the date of the patent.

If the design of the package or container is new and ornamental, a design patent may also be secured. Design patents are for terms of three-and-one-half, seven or fourteen years, depending upon the term applied for and the fee paid to the Patent Office.

Prints and labels may be copyrighted in the Patent Office, provided they are artistic creations used in the

* Patent Attorney

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10, 11. The latter offers far greater protectability than the former since it builds the trade mark right into the design of the package as a whole. **12, 13.** The diamond trade mark is unrelated to the rest of the package in the former instance and therefore its protection does not extend as strongly to the package as a whole as it does in the latter case, where the whole front face ties in with the diamond motif. **14, 15.** Another contrast between weak and strong uses of a trade mark.

sale of goods. Such copyrights are for a period of 28 years and may be renewed for 28 years. Each must name, or picture, or be descriptive of, some particular article, or class of articles and, prior to filing application for copyright, must be originally published with notice of copyright. A label or print is considered published when it has been printed ready for use.

A label must be something attached to the goods, as by pasting onto the container. Cartons, cans, wrappers, etc., are classed in this category and may be registered in their entirety when submitted in flat form. A print cannot be attached to the goods, but must be used to advertise them; advertisements in magazines, street car cards, displays, etc., make up this group. Copyright gives the owner the right to sue directly in Federal Courts to obtain damages fixed by law.

There are instances, also, in which prints, pictorial illustrations, pamphlets, etc., may be copyrighted in the Copyright Division of the Library of Congress. But this type of copyright, though more economical, must not be confused with the Patent Office copyright.

To sum up, in protecting a package, there is first to be considered the matter of a registered trade mark which appears on the package, but which covers the article enclosed in the package; then a mechanical patent, if the construction of the package is novel; next, a design patent covering the package, if it is new and ornamental; and finally protection by way of copyright. Sometimes it is advisable to use all these forms of protection, where they can all be used.

PROTECTION AGAINST COMPETITION—STATE

by LEE W. MIDA*

The Lanham Bill now before Congress is designed to supersede the common law ownership of trade marks in interstate commerce by Federal legislation establishing ownership of trade marks in interstate commerce in those

* Midas Trade Mark & Patent Bureau

who register them under certain conditions. The new law contemplates that Congress shall, by legislation, establish a new form of trade mark law in the United States, a form under which trade mark ownership is acquired by registration. This ownership, as contrasted with the present common law ownership, would be certain and secure. It would not require, as does the present common law, that in order to acquire trade mark ownership throughout the United States the mark be actually used throughout the whole United States. It substitutes Federal registration for such use as a suitable means of acquiring ownership.

Until this law or some similar law is actually passed, however, *state* trade marks will retain their importance. At present, brand ownership is basically confined to the territory where the branded commodities have been introduced, proprietorship under the common law not extending beyond the field of actual distribution. This leaves the way open for unscrupulous or ignorant competitors to use the same brand in undeveloped territory.

Furthermore, in considering an expansion program for a branded commodity, there arises the vital problem of protecting the brand names within the states where sales are first developed and, simultaneously, to anticipate and fortify future expansion to additional states or sections of the country.

Federal Trade Mark Registration pertains only to interstate commerce; it is effective only within those areas where the registrant has priority of use, and it provides no punitive penalties—remedies under the civil code alone being available.

State Trade Mark Laws provide fines and imprisonment for infringing registered trade marks. These laws deal with infringers as offenders against "the People," subject to the Criminal Code. State Trade Mark Laws permit registration without pre-sale. They admit the earliest applicant, they allow broad coverage for all related goods. They are generally framed to register perpetually and are powerful in securing correction of infringements locally.

Many nationally known trade marks, as well as thousands of local distribution, are registered in the states. Owners must have their own state protected to control local infringers. They need penalties, not endless litigation. Markets must be preserved for expansion. Good will must be fortified by adequate insurance. The Trade Mark Laws of the states are independent and, for the most part, effective in speedy discouragement of infringers of all types.

This is particularly important at the present time because of pending legislation in various states seeking to make the registration of any product sold in that state *compulsory* as a pre-requisite for sale. Further, there are bills pending which, while exempting all earlier registration, set a definite time limit upon complaints against infringement of Federal registrations or common law rights, provided this infringement is confined within the boundaries of the state and is properly and legally registered in that state.

In other words, just as Del Monte is kept out of six or seven western states and Blue Ribbon banned from Illinois and one or two other states, so any owner of a Federal trade mark not selling in a particular state may find himself blocked in perpetuity if he fails to take cognizance of an unadvertised, inconspicuous local or state registration. The Supreme Court has voiced the fundamental opinion that the individual states may create a status of the validity of trade marks within the confines of the state. It stands to reason that what the state is in a position to create, the state is also in a position to condition. Therefore, the uproar over demands on the part of the individual states, such as Utah, is likely to prove unavailing to the complainants.

While 48 separate searches and registrations in 48 separate states may seem a large order and a very complicated procedure, the manufacturer should by all means register his trade mark properly in all of the states in which he actually does business and give serious attention to the states in which he may possibly do business at a future date. By this procedure, he will not only be better equipped to protect his rights at the present time, but he will be prepared for future development.

PROTECTION AGAINST PENALIZATION

by **DANIEL R. FORBES***

Government regulation and restriction overshadow almost all other considerations in many departments of business today. Established trade practices are being upset right and left.

Nowhere is the confusion greater, or the penalty for a mis-step more severe than in the legislation and interpretations of that legislation applying to packaging. Not single, but double and triple damages await the unwary. Cartons or containers may become worthless or actual dynamite because of a poorly chosen word or an unwise illustration. Established products may become unmarketable by provisions of an FTC fair practices code. What the FTC permits, the FDA may condemn. A trade mark may be good on the present products, but become an infringement by the addition of a new item or sales in a new state.

The package bears the brunt of this legislation; not so much because of itself, but because it is the definition, explanation and presentation of contents to the public. Few products are illegal in themselves; any firm is entirely at liberty to market almost anything, regardless of who else sells the same thing—except in the case of patented formulae or constructions. The quantity, the manner of preparation, the quality and the price—except in certain specific and limited fields—are left to the manufacturer's discretion. It is not *what* the product is, but *how* it is represented that the Government seeks to control. The package conveys that representation.

The intent is not to hamper legitimate enterprise, regardless of frequently expressed opinions. Common

* Attorney

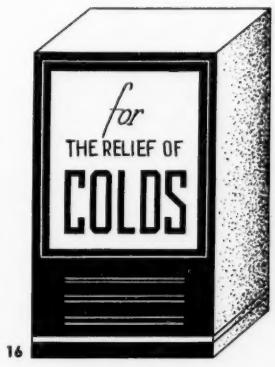
table salt can be sold for a dollar a gram—but only when labeled as such, and not as "Crystallized Sea Water"—or the Food and Drug Administration may suspect an intent to deceive. Plain grain alcohol has its uses, but, under the name of Essential Licquer or the Holy Spirit, it would never get by the Federal Alcohol Administration. If Chinese bean sprouts seem to be sweeping the market under one brand name, any other manufacturer may compete in the sale—providing he does not attempt to cling too closely to the originator's coat tails. Misbranding, misrepresentation, undue emphasis, exaggerated claims, unfair competition and imitation or outright piracy all are offenses committed by the package—not the product. In attempting to eliminate them, Governmental authority reaches the manufacturer through that outward aspect of the goods he sells.

Unfortunately, the simple and direct intent becomes clouded by the multiplicity of rulings and supervisory bodies. Three powerful bodies, however, stand heads and shoulders above the rest.

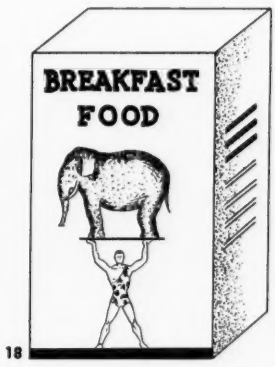
Of these three, the Federal Trade Commission is perhaps the most important. Its activities cover all competitive business. It serves as the enforcing arm of the Food and Drug Administration. Even when an action brought by the FTC on behalf of the FDA, however, is adjusted to the satisfaction of the former, the FDA still remains at liberty to continue action independently if it sees fit. A part of the Commission's police work are the Robinson-Patman Act, problem to both buyer and seller, and the Clayton Act. Thus it may affect, through its manifold operations, many aspects of a single packaging or merchandising problem. Every piece of advertising or display material, every container or label sent across a state line is subject to this body's scrutiny.

The recently enacted Food and Drugs Act is of greater concern to manufacturers of packaged foods, drugs, cosmetics and devices than even the new provisions of the Federal Trade Commission Act. The powers of the Secretary of Agriculture have been enormously increased. By regulation, he may prescribe forms of labeling. The very form of the package may be held deceptive if it makes the contents seem greater than they actually are.

The regulations promulgated by the Secretary will have the dignity of law if predicated upon substantial evidence introduced at hearings held for their consideration. Thus the manufacturer has his day in court before



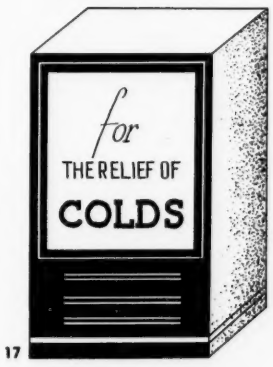
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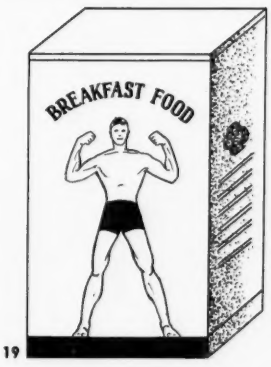
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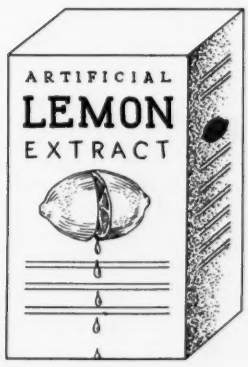
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21

16. Undue emphasis on the word "colds" might be construed as an attempt to submerge and obscure the fact that the product "relieves" rather than "cures." **17.** This degree of emphasis would be more likely to pass as a legitimate emphasis for display purposes. **18.** Probably taboo because of implied exaggerated claim. **19.** More likely to pass. **20.** Probably taboo as a false claim by illustration, since potatoes are not commonly considered as King of Vegetables. **21.** Don't try to show the real thing on the label of an imitation product.

the regulations which control his conduct are formulated, but unless he prepares his facts and presents them properly, the results may be disastrous.

The legal principles which control the enforcement of these laws are relatively simple. The greatest problem is to find the facts and, having found them, to interpret them to the best interest of the public with the least handicap upon the merchant who offers merchandise for sale to the public.

The greatest danger lies in the tendency of Government agencies to give highly technical and literal meaning to words used in commerce. Few words have an exact meaning. They mean whatever the public understands them to mean. The foresighted manufacturer of packaged merchandise will start now to find out the meaning of the words he employs to describe his product—that is, the meaning the consuming public gives them. He will then consult both scientific and legal counsel to determine if the product lives up to the representations, as is required by law. He will thus be prepared to offer "substantial evidence" in support of or in opposition to regulations proposed by the Department of Agriculture. He will be in a position to design and word his labels and advertising with confidence that he is not misleading the public. That, shed of all legalistic verbiage, is all that the new law says he shall not do.

The Federal Alcohol Administration, covering the more limited field of alcoholic beverages, functions in a very cooperative and helpful manner. This attitude in major problems, however, does not prevent a rigid and unyielding viewpoint in minor matters. The expense of scrapping costly labels and display material not properly reviewed in advance, is the penalty paid for lack of foresight.

The Federal Alcohol Administration holds the power of life and death over any business operating under its authority. Its administrator exercises a more complete and exacting control over labeling, packaging and advertising than is extended to any other Federal agency in any other field—a control enforced by the issuance, denial, or revocation of basic permits without which business cannot be conducted. The packaging effort unapproved will never be seen by a customer if this body so dictates, regardless of expense and trouble to the interested distiller or rectifier.

Apart from these three omnipotent organizations, a number of others touch, to a greater or lesser degree, various aspects of packaging in various fields. A dozen independent bureaus may have rulings affecting a single, seemingly inconspicuous, piece of paper or cardboard. The Post Office, the Bureau of Internal Revenue, the Interstate Commerce Commission, and a number of others, all have definite opinions regarding packages, or parts of packages, coming within their authority. Woe betide the manufacturer who "didn't know" and went ahead regardless.

States also have frequently introduced overlapping and frequently contradicting, regulations applied to packages sold within their borders. This is particularly true in regard to medicinal preparations and foods. It may not be necessary to consider the restrictions in California when distribution is confined to the east, but where a product is sold—or is intended to be sold in the future—it must conform in packaging or take the consequences sooner or later.

Trial and error methods seldom work out. Apart from expense involved in changing and making over, the possible penalties in loss of sales as well as money, far outweigh the expense of due consideration at the proper time—before the package reaches the market. The legal aspect is just as truly an essential part of the packaging problem as design or construction. It should be considered as such.

Before making a packaging investment, check up on the laws covering the particular field in which the product fits. Join and use the association organized in that field. Consult the trade papers. Confer with lawyer, chemist or doctor. If possible, retain a competent, experienced authority to work with the designer or check over his efforts. Obey the law and no possible penalties—direct or indirect—can ever interfere with sales and distribution. Disobey and take the consequences.

Anything *may* get by. It usually does not.



22. Continued sale of a product under a given name, design or type of package sets up the strongest possible claim to the means of identification used. Common law rights are based upon the actual use of the trade mark upon the goods. Further protection can be afforded by the following devices: print registration can protect a display; design patents may protect unusual shapes or constructions of packages; labels may be copyrighted in the Patent Office. The term "label" includes cartons. Pamphlets used as inserts may be copyrighted through the Library of Congress. Other avenues of protection are available in special instances.

XUM

DIRECT COLOR PHOTOGRAPHY

by C. W. BROWNE*

Almost as old as photography itself is the desire for accurate color photographs. Vogel in 1871 discovered—by accident—how to isolate the primary colors on a photographic plate, but it was more than 30 thirty years later that a patent was granted (to Lumiere) for making transparencies, which were inadequate and inaccurate in reproducing natural colors.

Today there are a number of methods long past the experimental stages. The early processes required long exposures, thus automatically eliminating all but still-life subjects. Today, at least one process is as fast, if not faster, than ordinary photography, thus permitting an infinite variety of life and action scenes. During the early days the engraver faced serious problems; today he can work from the original negatives, usable as separations; or he may produce his color separations from the transparency which contains all the colors.

Probably the first uses of direct color reproductions were in editorial material. But advertisers weren't long in whole-heartedly adopting the process for periodical advertising and for booklets. In the field of packaging, color photography has made a start; but it is only a start, when one stops to consider the possibilities. For example, labels for canned fruits and vegetables have traditionally carried illustrations—more or less fanciful—picturing the contents of the cans. Now direct color photography has invaded the province of the sketch artist and the cans on the grocer's shelves not only carry accurate color pictorials of the actual contents of the can, but the product is often shown as it appears when served. Little imagination is needed to forecast applications for drug products, confectionery, and cosmetics.

Today, while it may be taken for granted that advertising and packaging need color, the shrewd buyer—forced to keep costs down and at the same time to keep up with competition—asks these questions about direct color:

"How is it done?"
"What are its advantages?"
"Does the public want it?"
"What are the pitfalls?"
"What does it cost?"
"Let's see some examples."

And that may be considered an outline of what follows.

Photographic Processes

The three principal basic methods for obtaining direct color photographs are:

1. By the "repeating back" camera.
2. By the "one shot" or "split beam" camera.
3. By the "color-in-the-film" method.

The "repeating back" camera makes three and sometimes four different negatives, through color filters. The exposures are of varying length for the different filters. These negatives are usable as continuous tone color separation negatives. The camera is rigidly mounted and adjustable for shots from any angle. Faster work than four seconds for the several exposures is hardly to be expected; therefore this type of camera is at its best for still life. Living models and perishable products are more difficult but by no means impossible. Action scenes are precluded. Shots on location are rare. Studio scenes with carefully planned "props" and trained models as arranged by expert operators (Steichen, Bruehl, Muray, White and others) have produced amazing results. Capable of greatest color accuracy, this method is probably also the most expensive.

The "one shot" or "split beam" camera, by means of its ingenious internal construction, is devised to deflect the light through filters to produce three continuous tone color separation negatives with a single exposure. Though the single exposure means a considerable gain in time, advocates of the "repeating back" method contend that the "one shot" camera is not as accurate. For many types of subjects, the discrepancy is not serious, particularly if the original is reduced in reproduction; though of course enlargement may magnify defects. One of the principal advantages of this type is portability.

"Color-in-the-film" methods have received a tremendous impetus during the last few years. By this process, a transparency is produced which is usable both as a color guide and for making color separation negatives. Speed, flexibility and adaptability of the method open up a far wider field for color photography than it has hitherto enjoyed. There are several practical processes. Three best known methods are:

Finlay: The original negative is made through a taking screen of 175 lines to the inch. From this negative is made a contact positive which, in turn, (by means of a viewing screen containing a reseau of the primary colors) is used to make the color transparency. Several sizes are available, up to 8 in. by 10 in.

Not all engravers are enthusiastic about the Finlay method, contending that the relatively coarse screen makes it difficult to eliminate the pattern, even when using the "block-out" screen developed by the inventor.

Dufaycolor: The film, available either in rolls or cut sizes ranging from miniature to 8 in. by 10 in., is coated with minute dots 1100 to the inch, sensitized to the three primary colors. Developed, the film becomes a negative and by a reversal process becomes a positive colored transparency. Developing is handled either by the manufacturer of the film or by the local photographer,

* Manager of Marketing Service, The United States Printing & Lithograph Co.

the time element in the latter case comprising a distinct advantage in commercial work.

The Dufay screen or pattern is not apparent in reductions or in reproductions of the same size, but is sometimes difficult to eliminate from enlargements greater than $2\frac{1}{2}$ diameters.

Kodachrome: Most recent to appear, this method seems to possess many advantages. There is no screen or pattern in the film. From exposures as fast and sometimes faster than black and white photography, continuous tone negatives are developed which by a reversal process become positive transparencies in color. The film is available for 16 mm., 35 mm. and bantam size cameras and in a new series of sizes for professional work up to 8 by 10 in. Developing, which is now handled solely by the manufacturer, requires a minimum of six to eight days for the return of the finished transparencies which, of course, is a serious disadvantage in commercial work. Absence of screen permits enlargement almost indefinitely.

In the case of both Dufay and Kodachrome, complaint is made that some colors are fugitive. Color accuracy is not 100 per cent dependable with either method, but future progress will undoubtedly produce improvements in technique and materials. Films for Dufay and Kodachrome are surprisingly moderate in price.

As yet, for any of the methods mentioned, no rapid or economical method has been evolved for making colored prints. If prophesying were safe, the writer would venture to predict that that will be the next step. With Finlay, any number of contact positives can be made from the original negative. The Dufay process permits any number of duplicate positives to be made from any Dufay film. Kodachrome permits duplicate positives from the original negative *before* the reversal process. But the making of photographic prints in color, on any basis comparable with black and white possibilities, has not kept pace with the technique of taking the shots. Among the several methods of making color prints are:

Carbro: Slow, difficult, costly and subject to damage during process from temperature fluctuations. The process really amounts to making an assembly of three layers of gelatin, one from each of the positives produced from the color separation negatives. Trial assembly being impossible, an error in the process means beginning all over again. The finished print, which may be retouched and corrected, makes a very fine piece of finished art from which the engraver can work.

Chromatone: Somewhat faster than Carbro; consists of a lamination of three color-toned collodion films in register on a paper or glass mounting. Trial assembly is possible before mounting; any one of the three films may be re-made to obtain corrections.

Wash-off relief: From the separation negatives are made collodion emulsion transparent positives, which after development absorb dye in correct tonal relativity; this dye in turn is transferred to paper. In other words, the surface of the paper is dyed to correspond with the colors of the original subject. Correct color balance may be determined by trial assembly of the transparent positives prior to transferring the color to the paper. Reasonably fast and capable of being retouched, the wash-off relief is in fairly wide use for producing engraver's color guides.

Accurate Reproduction

For the advertiser or package buyer, successful reproduction is the all-important point. Fortunately, engravers and plate makers in both typographic and lithographic fields have kept fully abreast of the times. As a matter of fact, the engraver and plate maker can frequently be counted on to improve the original photograph; for, as one skillful craftsman expresses it, "All these processes must undergo correction."

Whatever method is used for making the original shot, separation negatives are required for either lithographic or typographic plate making. The "repeating back" and "one shot" cameras, as already noted, produce continuous tone color separation negatives without intermediate processes; but "color-in-the-film" methods necessitate the making of separation negatives as an additional operation. This is done from a colored print, or it may be done direct from the transparency. The latter operation is simple. Backlighted through an opal diffusion glass, the transparency is photographed through filters for the three separations. Once the separation negatives are supplied, from then on the procedure becomes that of regular plate making.

Advantages of Direct Color

What advantages has direct color photography not possessed by other methods of preparing original art for color reproduction? The tide is rising rapidly. Is it a passing fancy or is direct color here to stay?

Without a doubt, it is here to stay. Improvements in the technique have been fast and more will come—probably soon. Direct color photography meets the demand for life, action, reality, depth, full detail, third dimension—in color. Note that the word "accuracy" has been omitted from this list. That should be included in the list of demands, but it cannot yet be stated without qualification that any of the photographic processes, per se, are 100 per cent accurate as to natural color. For reproduction purposes, the deficiencies are met by corrections in plates and by means of ink selections.

Not the least of the advantages is in the saving of time. A colored sketch of acceptable quality, even of a comparatively simple subject, requires ample time. Direct color photography shortens the interval between conceiving the idea and going to press with it, even allowing for studio preparations of elaborate scenic effects, models and "props," as well as delays incidental to developing shots, making color prints, etc., referred to above.

A typical example from the food packaging field will illustrate many of the points. The manufacturer of a sandwich spread, let us say, feels that a pictorial display container will help sell the product. That product of it-

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Courtesy the United States Printing & Lithograph Co.

Courtesy Stecher-Traung Litho. Corp.

Two outstanding examples of the use of direct color photography on can labels. The Veg-All label combines photography with art work on its front vignette and utilizes its rear panel to suggest the appetizing appearance of the product when prepared for the table. The Conquest label uses the same vignette on front and back so as to present the product in appetizing form from all angles of display.

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Veg-All Meatless Dinner:

TOMATO JUICE
★VEG-ALL CUTLETS
PINEAPPLE-CHEESE SALAD — DINNER ROLLS
SPONGE CAKE WITH CHOCOLATE SAUCE
COFFEE

File-Size Recipes: clip and paste on cards.

★ Veg-All Cutlets

1 can Veg-All (drained)
2 c. cold boiled rice
1 tbs. minced onion
1 ts. parsley
salt, pepper
1 egg, beaten
cracker crumbs

Method

1. Drain and mash Veg-All.
2. Mix with rice, onion, parsley, seasonings.
3. Form into balls; flatten in shape of cutlet.
4. Dip in crumbs, then in beaten egg, and again in crumbs.
5. Saute until brown in bacon drippings.
6. Garnish with gherkins and cubes of jelly.

Serves: 4 or 5.

The following may be substituted:

Spinach Ring with Creamed Veg-All

1 peck spinach, cooked and ground
3 unbeaten eggs
¼ c. cream
¼ c. butter
1½ c. bread crumbs
¼ ts. pepper
1 ts. salt
1 can Veg-All, drained, mixed with
2 c. medium cream sauce, well seasoned

Method

1. Combine spinach, eggs, cream, crumbs, seasonings and place in buttered ring mold.
2. Steam for two hours.
3. Unmold and fill center with hot creamed Veg-All.

Serves: 6.

Veg-All Stuffed Onions

6 large onions, peeled
1 can Veg-All, drained
1 c. cracker crumbs
1½ ts. salt
⅛ ts. pepper

Method

1. Boil onions in salted water 5 minutes.
2. Drain in cold water; cut in half crosswise.
3. Simmer in salted water until almost tender.
4. Remove centers; chop and add to Veg-All and crumbs.
5. Stuff onion shells.
6. Dot with butter, bake in covered pan 30 minutes in 350° oven.

Serves: 6.

For the best Vegetable Soup you ever tasted — Combine Veg-All with boiling meat stock. Cook 5 minutes. Season to taste and serve.

Write for free booklet of menus planned with Veg-All ★ recipes

The LARSEN COMPANY, Green Bay, Wisconsin

Courtesy the United States Printing & Lithograph Co.

Courtesy Stecher-Traung Litho. Corp.

Two outstanding examples of the use of direct color photography on can labels. The Veg-All label combines photography with art work on its front vignette and utilizes its rear panel to suggest the appetizing appearance of the product when prepared for the table. The Conquest label uses the same vignette on front and back so as to present the product in appetizing form from all angles of display.

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self may not appear particularly interesting or appetizing—it may be a gooey mass resembling mixed concrete or facial cream. But put some sandwiches on a cocktail tray, surrounded by silverware, glass and hors d'ouvre and you present an appetite appeal with a powerful sales urge. The subject calls for reality, color, detail.

Regardless of the method chosen for producing the original art, the first problem is artistic selection, arrangement and posing of the subject. Make no mistake, that calls for a high degree of artistry. The expert photographer—and it's real economy to employ an expert—knows all the tricks which produce the correct relative emphasis; he covers the silver with a thin film of metal polish to subdue too strong a gleam; he puts a tiny drop of oil on an olive to bring out a highlight; he adjusts his floodlights to make the best use of the glitter of glassware; and he puts a tracing of the layout on transparent cellulose over his ground glass to insure absolutely correct position of the various objects.

For a subject of this nature, to provide original art which will accomplish the desired purposes, it would seem obvious that we may rule out the other two possible methods, namely, the colored sketch and the "color applique." Because of the perishable character of the subject, even the most skillful and painstaking artist would be at a disadvantage—both as to time and technique—in depicting full detail of color and texture. True, the first color camera shot might not be satisfactory, either necessitating a fresh start or corrections on color print and plates. However, Dufay and Kodachrome are so moderately priced that a whole film could be exposed, if desired, and a selection made of the shot most suitable from the standpoint of posing, coloring and depth of detail. Even allowing time for developing, you're still days ahead of the schedule required by the other two methods.

And the public—literally in a case like the above—eats it up—likes direct color photography well enough to respond with purchases of articles so presented. That statement can be attested by sales curves.

This response is partly the natural instinctive or emotional response to the stimulus of color, but that isn't all. The prospective purchaser has a perfectly rational desire to see an accurate pictorial representation of an article or its uses and color photography appeals to the consumer as an unimpeachable vehicle for "Truth in Advertising." Color photography even has the power to glorify a product to the point where the truth may be somewhat stretched, but this can scarcely be considered a reflection on the process.

Of course, not all subjects require or should have the kind of treatment given by direct color photography. There are many packages whose size and surface texture preclude its effective use. It might be difficult, for instance, to put an effective direct color illustration on a cosmetic package—though such pictorials would undoubtedly be appropriate enough on the display material for the product. Common sense—sales sense—and good judgment must be exercised and the temptation resisted to use direct color simply because the costs are down.

Cost and Time Considerations

After it has been decided that the subject genuinely calls for it and that its use will be thoroughly justified in terms of sales effectiveness, color photography is still full of "ifs." If the subject has been properly posed and lighted for relative advertising emphasis; if the photographer has expertly handled the exposures; if the development of negatives and positives has been timed to the split second; if the plates have been carefully made; if the printing is in perfect register on correct stock—the results will be all you have hoped for. Lower costs for direct color in all probability will result in a great increase in its use; but lower costs must not mean any decrease in the discrimination and judgment exercised by the art buyer. He has the opportunity to use a method of preparing original art which promises to be quicker, more accurate and perhaps cheaper; but an artistic brain behind the camera is just as essential as one behind the brush and an effective layout is just as imperative for direct color as for any other kind of illustration. The point has been reached where just direct color won't do; it must be *good* direct color, intelligently used.

In considering costs, the point to keep in mind is, "By which method can I best accomplish what I want and what the subject calls for?" Specific cost comparisons are a little difficult to arrive at. For instance, a hand-painted food pictorial for canned goods may cost from $25 to $200, depending on the artist, and the same artist would probably charge correspondingly for a "color applique"—if that happened to be in his line. And there seems to be just as wide a variation in the prices asked for direct color shots of the same type of subject. Current quotations range from $25 up, sometimes including a carbro or wash-off relief print.

Original art for advertising subjects affords no more definite comparison. Direct color shots utilizing models and involving elaborate studio sets sometimes commanded prices in the four figure class, though such prices are rather rare today. The field is full of good photographers who have mastered an art formerly practiced by only a few and price can no longer be considered an insurmountable obstacle. High grade work is obtainable at figures comparable to the costs of original art prepared by other methods. No matter where the buyer may be located, there is at least one good studio not far from him. Frequently package suppliers, label makers, carton makers and display manufacturers maintain their own studios and staffs or are affiliated with studios skilled in their specialized work.

As a general thing, after the original art is approved, plate making and printing costs will run about the same for all types of art. It should be noted, however, that usually direct color photography can be reproduced either typographically or lithographically in four colors; whereas other types of art may require more. This means a saving in plate making expense and press run costs, with the probability of less spoilage.

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SECTION TWO

PAPER BOXES

Pages 63 to 130

SET-UP AND FOLDING BOXBOARD

FOLDING CARTONS AND DISPLAY CONTAINERS

PARAFFINED CARTONS

METAL EDGE BOXES

SET-UP PAPER BOXES

CYLINDRICAL, CONICAL AND RECTANGULAR

PAPER CONTAINERS

MOLDED PULP CONTAINERS AND DISPLAYS

LEATHER AND FABRIC COVERED BOXES

FANCY WOODEN BOXES

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SET-UP AND FOLDING BOXBOARD

Set-up and folding boxboards are manufactured on the same machine, the difference being that created by the raw materials used in each in the process of manufacture.

Paperboard, as used for both types of boxboards, is made of old papers as much as possible. Old papers are cheaper than new pulp yet contain the same fibres as new pulp. New pulp is added to the finish in sufficient proportions to bring the strength, bending quality, and color up to the required standard. Due to the many grades of waste papers and pulp, and to the multi-cylinder construction of a board machine, it is possible to produce an almost infinite variety of boxboards. Among the most common, however, are the following:

Definitions and Trade Terms

The following definitions, as established by the National Paperboard Association, apply to set-up and folding boxboards. For nomenclature of boards used for corrugated and solid fibre containers (shipping cases) see Section 12, "Corrugated and Solid Fibre Containers."

Standard Sizes: The standard size of all grades is 25 by 40 in., containing 1000 sq. in. Patent Coated or Manila Boards are also made in sizes 24 by 36 in., containing 864 sq. in., and 28 by 44 in., containing 1232 sq. in. The standard sizes are used as bases for all computations.

Standard Package: A standard package of Patent Coated or Solid Manila Board is a ream of 500 sheets. These grades are sometimes packed, for convenience, in fractions or multiples of a ream, depending upon the size of the sheet.

Bundle: A bundle is a unit containing 50 lbs. The quantity of sheets varies with the size and the caliper but the weight of 50 lbs. of board in a bundle is always fixed.

Regular Numbers: The number or regular number is the quantity of standard sized sheets (25 by 40) of boxboard required to make a bundle of 50 lbs.

Count: The count is the quantity of odd-sized sheets required to make a bundle. If sheets are standard size (25 by 40) the count is identical with the Regular Number; therefore, it has become the custom to use the term "count" to apply only to odd-sized sheets, and "Regular Number" to standard size.

The area in square inches of the board in a bundle of a Regular Number is the number multiplied by 1000 (25 by 40). The square inch area of an odd-sized sheet is the width multiplied by the length, and by dividing this figure into the area of the corresponding Regular Number the count for the odd-sized sheet is found.

Caliper: Caliper is the thickness of board expressed in $^1/_{1000}$ of an inch and written as a decimal of an inch. A "Point" is one such part of an inch.

Finish: There are four standard finishes designated by numbers 1 to 4. The degree of finish is regulated by the pressure exerted on the calenders under which the board passes. The pressure determines the density of the sheet. The resulting surface is incidental, but gains in smoothness as calender pressure is increased.

No. 1—Light pressure, resulting in a rough surface and low density. It gives large sheetage for its weight, i.e., it has most area per pound of board.

No. 2—Medium pressure with fair surface and sheetage. Popular for ordinary printing and general utility.

No. 3—Heavy pressure with smooth surface and low sheetage. Used largely where better printing surface is required.

No. 4—Heaviest pressure with extra smooth and slick surface, dense body, and firmly compacted fibres. It has the lowest sheetage.

Rough—Smooth—Where but two finishes are used the relative terms "Rough" or "Smooth" designate light or heavy weight board per caliper point.

Dimensions: In stating the dimensions of a sheet the width in inches is given first and the length last. Width is the measurement across the machine; i.e., space between slitter-knives. Length is always the measurement in the direction of the grain; i.e., space between knife cut-off.

Bending: A board is considered a "bender" if, when properly creased and folded, no break in the outer fibres is found.

Under non-bending (set-up box) board are included the following: Plain Strawboard, Plain Chipboard, Filled Wood Pulp, Filled News Board, News Vat-lined Chip, Single White Vat-lined Chip.

Under bending (folding box) board are included the following: Single Manila Lined Chip, Bleached Manila Lined Chip, Double Manila Lined Chip, Colored Boxboard Chip Back, Bending Chipboard, Colored Suit-box Chip Back, Mist Color Suit-box Chip Back, Crackershell Board, Solid Jute; any combination with Chip, News, or Pulp Back.

Under patent coated board are included the following: Patent Coated Solid Manila Back, Patent Coated News Back, Patent Coated News Center, Manila Back Patent Coated, Chip Back Patent Coated, Blue or Color Back Board.

Varieties of Boxboard

Chip is made up almost entirely of mixed papers. Occasionally stronger fibres are added to produce **Test Chip.** The filler of most vat-lined paperboards is chip.

News is made of old newspapers. The gray color is due to disseminated printer's ink. News is usually used as the inner surface of other boards (e.g., white patent

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SO *you think* YOUR PRODUCT *is* HARD TO PACKAGE?



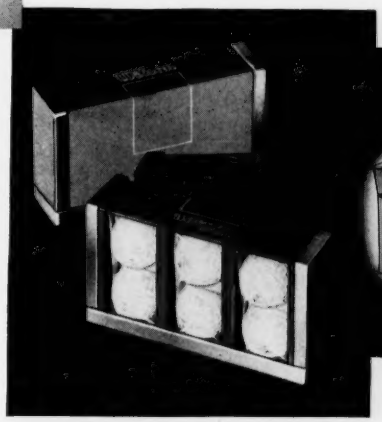
Presenting a Few Examples of Packaging Ingenuity — Evidence of What Ritchie Can also Do for YOU!



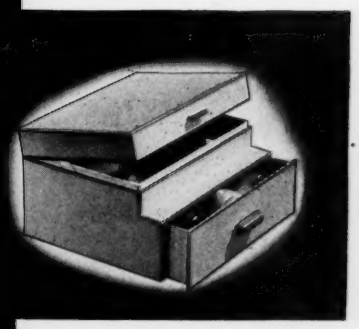
FIT FOR KING COTTON — *all of whose packages were pretty much alike — all inclined to be untidy after opened — until Bauer & Black and Ritchie decided something should be done about it. Shown with the now famous Cotton Picker is the new professional size designed exclusively for doctors.*



FAMILY OF FOUR — *a simple solution to a complex packaging problem. Fifty-one* different *steering assemblies — each containing more than 70 parts — are conveniently and economically sold in these four packages. Identification and handling are easy — tampering impossible. Incidentally, this Family of Packages was a Gold Award Winner.*



GIFT PACKAGE FOR GOLF BALLS — *Wilson wanted some really unique — yet really practical — way to package six golf balls as a gift item. Ritchie's answer to this problem is shown here both open and closed.*



DESIGNED FOR DRESSING TABLES — *a distinctive Ritchie package for Dorothy Perkins cosmetics. Large enough to hold all the lotions, creams, etc., a woman ordinarily wants, avoids bulkiness by use of a clever drawer arrangement.*

Why not let Ritchie show you — without obligation — how distinctively, economically and successfully *your* packaging problems can be solved? Why not give your product the *sales advantages* of a package by Ritchie — a package that reflects all the design and manufacturing refinements developed during Ritchie's 72 years of sound packaging experience? Why not write us — NOW?

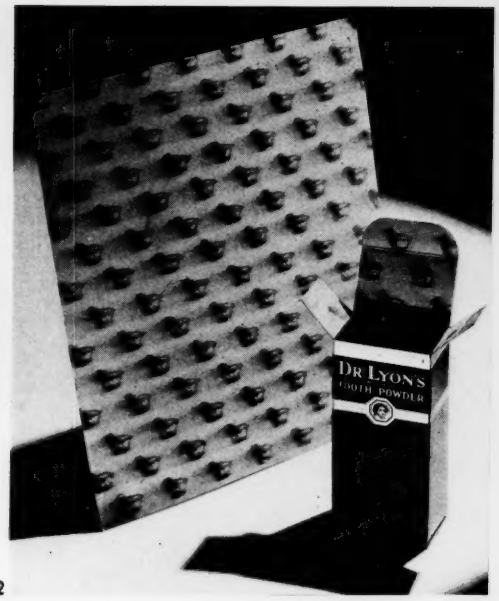
Set-up Paper Boxes — Fibre Cans

W. C. RITCHIE AND COMPANY • 8861 BALTIMORE AVENUE • CHICAGO

NEW YORK DETROIT CINCINNATI LOS ANGELES ST. LOUIS ST. PAUL DENVER



1



2

1. "Safety" tag board with patented markings forming an integral part of the board are used to identify products as genuine and to prevent counterfeiting. Photo courtesy George LaMonte & Son. **2.** Both liquor and drug manufacturers, among others, frequently utilize counterfeit-proofed carton-boards marked with trade marks or other identifying patterns. Photo courtesy of American Coating Mills, Inc.

coated news back). Occasionally boards are made of **solid news.**

Manila got its name originally from manila rope fibres. Today manila contains no rope fibres. Boards and papers are still made of these fibres but the product is called "rope paper." Manila has come to mean a yellowish sheet containing 50 per cent or more of ground wood.

Non-bending manila is about two-thirds ground wood, one-third unbleached sulfite, plus some yellow dye.

Bending manila is the same except that the proportions are about 50–50.

Bleached manila is the same as the above two manilas, except that the yellow dye is omitted and some blue and red are added to neutralize the yellow of the ground wood.

Most **white patent coated** has a top liner made from bleached sulfite pulp and hard white shavings. Hard white shavings contain no ground wood. The filler of the board is usually chip.

Manilas, patent coateds, and other grades can be *colored* in the beater ("beater color") or on the calender ("calender stain"). They are then referred to as "colored coated boards."

Mist board has usually a top finish of news, or news and sulfite, to which has been added a quantity of dyed kraft fibres.

Solid boards contain no filler—precisely what the term indicates.

Clay-coated folding boxboard is the highest standard grade available for folding-box manufacture. Thus it is used widely for packaging drugs, cosmetics, liquors, cigars, and other products which are sold in attractive and convenient cartons. Like patent coated boxboard, clay-coated is made with a news center, on which is a liner composed of sulfite and white shavings. But onto the liner of clay-coated is applied mechanically a coating the base of which is clay and casein. This surface layer is then calendered to produce the desired high finish. The result is a smooth, uniform, firm sheet, especially suitable for coloring printing and lithography. Among its other qualities, it does not become discolored when exposed to sunlight, which makes clay-coated most adaptable to counter and window displays, as well as for cartons.

Protective boxboards: There is increasing call for special boxboards which will protect their contents against undesirable changes, as from drying out, picking up moisture, staining with grease or water, or tarnishing. The demand for such special requirements is being met with lines of water-shedding, water-proof, moisture-proof and grease-proof boards.

The first three specialties differ in important respects. A water-proof board is not necessarily moisture-resistant and a moisture-proof board is frequently not water-resistant for long periods of time. The distinction between water-resistance, which means the ability to hold liquid water, water-shedding, which means the ability to shed water when temporarily wet for a few seconds, and moisture-resistance, which means the ability to resist passage of water-vapor, must be borne in mind.

Moisture-proof boards: Moisture-proof boards are used for wrapping foodstuffs, to keep moist food fresh and moist, or dry foods crisp and dry. Moisture-proof coating is obtained by use of wax, resin, or lacquers. Moisture-proof coated boards are, however, difficult to glue into boxes, because the coatings are water repellent.

There are interesting new laminated boards where the laminated material is moisture-proof, as asphalt, wax or resin, and the liner consists of sulphite, grease-proof or glassine. Since the moisture-resistant material lies beneath a paper liner and does not come in contact with the boxmaker's glue, laminated moisture-proof boards can be readily glued.

A good moisture-proof bakery board will transmit not more than 10 Mg. of water through 100 Cm^2 of

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TUG-O-WAR

Quality tugging prices one way . . . Economy dragging quality the other. . . .

All boxmakers come up against this anarchy.

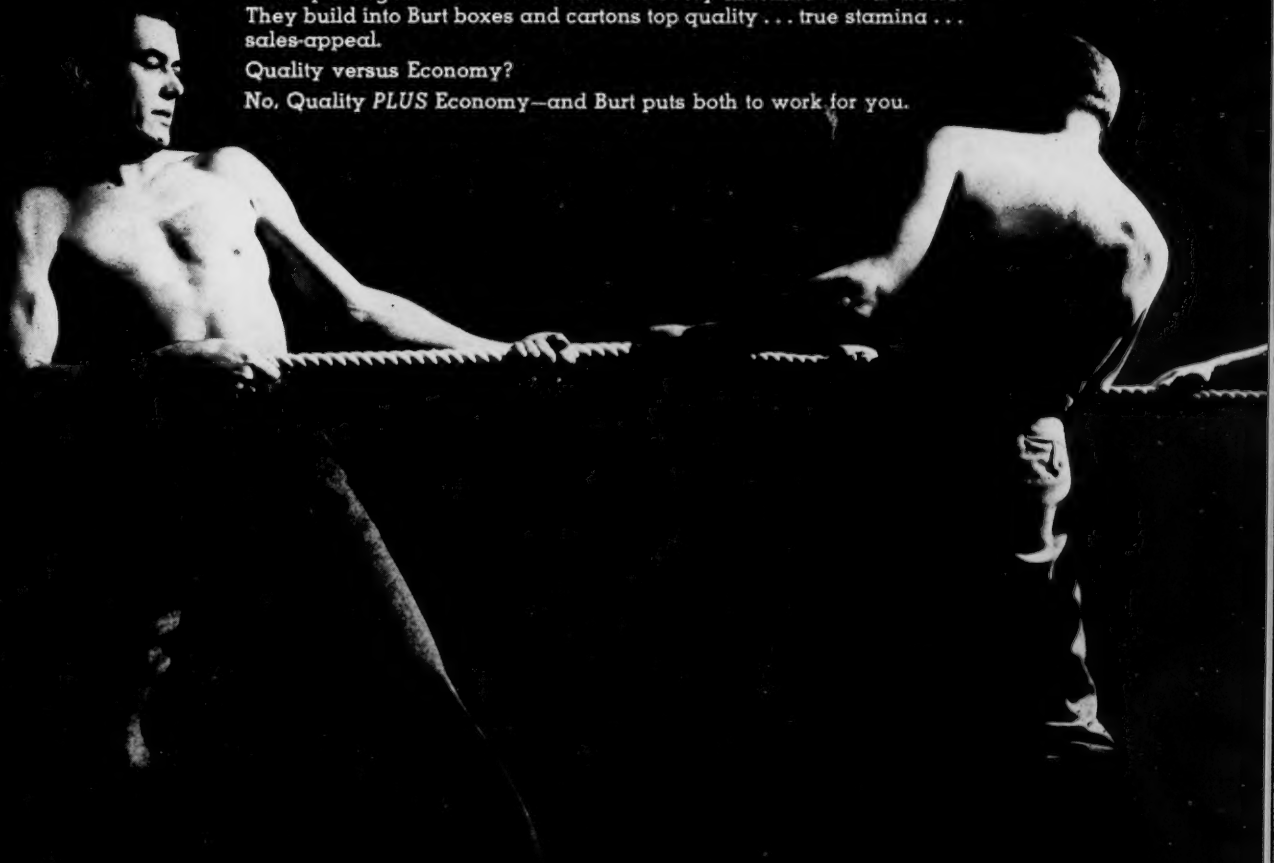
But BURT has found the way of putting *both* Quality and Economy in harness . . . in producing the finest possible box or carton at a given price.

BURT has facilities second to none . . . *special* machines to do certain jobs . . . and a reserve capacity great enough to see you through every jam. Burt can produce boxes and cartons at machine-gun speeds . . . with the accompanying economies that such high speed production assures.

And, because of our size, Burt is able to employ a staff of men of a calibre others cannot afford . . . and keep busy. These men . . . who *know* packages . . . make the most of every machine on our floors. They build into Burt boxes and cartons top quality . . . true stamina . . . sales-appeal.

Quality versus Economy?

No, Quality *PLUS* Economy—and Burt puts both to work for you.



F. N. Burt Company, Inc.

500-540 SENECA STREET, BUFFALO, N. Y.

NEW YORK CITY
630 Fifth Avenue
Room 1461

PHILADELPHIA
A. B. Hatheler
P. O. Box 6308
W. Market St. Sta.

NEW ENGLAND
A. E. Bacon
BOSTON
120 Boylston St.

SPRINGFIELD
P. O. Box 214
Highland Station

CHICAGO
Room 2203
919 N. Michigan Ave.

CLEVELAND
W. G. Hazen
P. O. Box 2445
E. Cleveland, Ohio

CINCINNATI
221 Walnut Street
Telephone: MAin 0367

MEMPHIS
Frank D. Jackson
2150 Washington Ave.

MINNEAPOLIS
J. E. Moor
3329 Dupont Ave. South

LOS ANGELES
Louis Andrews
823 South Grand Ave.

CANADIAN DIVISION
Dominion Paper Box Co., Ltd.
469-483 King Street, West
Toronto 2, Canada

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board per hour at 80° F. and 45 per cent R.H. Such a board will keep a cake fresh and moist for four or six days or longer, in dry weather. To be assured of a cake which retains its bakery freshness is increasingly appreciated by every hostess.

Frozen foods require a moisture-proof container. So far most frozen food packages, however, get their moisture-resistance from the translucent or transparent moisture-proof outer wrap. The combination of a good parchment, combined to suitable board with a moisture-proof laminating material, makes an almost perfect carton material for most frozen foods.

Water-resistant boards: Boards are available that will hold water indefinitely, suitable for milk containers, oyster and ice cream boxes. This characteristic is obtainable by beater sizing with wax and rosin and by coating with waxes or resins. A good water-resistant board will absorb only 100 Mg. of water on 100 Cm^2 in 18 hours. Fair resistance is denoted if the absorption is only 500 Mg. in that period.

Water-shedding boards: For florist boxes and other places where small quantities of water are involved, sufficient water-resistance is obtained by treating the surface so that the water drops run off "like water off a duck's back." A proper calender treatment will give this temporary water-proof effect.

Anti-tarnish boards: To be safe for packaging of delicate metal surfaces, such as silver or fine machine tools, the paper surface should contain not more than .001 per cent of free sulphur. Ragstock was formerly used for this purpose. Now boards made from well washed sulphite will meet this requirement. Kraft liners, special beater treatments and special coatings are available further to insure anti-tarnish qualities.

Grease-proof boards: In food packaging, grease-proof qualities are often essential. To be grease-proof enough to hold oil or butter indefinitely, a sheet must not absorb more than 20 Mg. of kerosene on 100 Cm^2 of board in 18 hours.

The chief difficulty in obtaining the desired degree of grease-resistance lies in making the resistant film flexible enough to fold. This is particularly true for grease-proof coatings, which are obtained by the use of casein, glue, gelatin, lacquers, waxes and resins. While it is relatively simple to plasticize the surface sufficiently in the flat, the coating seldom remains perfect in the fold.

The problem of grease-proof containers may be solved by laminating a good grade of grease-proof, glassine or parchment paper to boxboard, using a flexible adhesive. This combined sheet makes a very attractive box material and gives that impression of a clean and sanitary package which a housewife associates with grease-proof, glassine or parchment papers.

The really de luxe material for greasy, perishable foods is a combined sheet in which a flexible, moisture-proof film is used as the laminating agent. With a good grease-resistant liner, these cartons will show no greasy stain and the moisture-resistant film will keep the contents as fresh as the day they were manufactured.

Board manufacturers maintain facilities for determining the limitations and properties of their products, and it is recommended to users of both set-up and folding boxes that they make use of this experience and knowledge when planning redesigns of their packages.

FOLDING CARTONS AND DISPLAY CONTAINERS

by ARTHUR WEISS*

Specifying Stock: The universal method of specifying the weight of folding boxboards is on the point system, one point equalling one one-thousandth of an inch of thickness of the board. For example, the most widely used stock for small and medium sized cartons is sixteen thousandths of an inch in thickness, which is shown as .016. The range in folding boxboard weights is pretty definitely confined between .016 and .040 points, unless special requirements make it necessary to use a lighter or heavier board.

Specifying Style: As will be readily appreciated by simply looking through the following pages, folding cartons and display containers are made in an infinite variety of styles. Not every style is made by any one company, although none is such that it could not be, if it were not for patents that reserve their use to the patentees. Actually, all are comparatively simple in construction, requiring little in the way of complicated machinery to produce. In so far as possible the cartons and displays thus protected are so stipulated in the descriptive information given. It is suggested that manufacturers who seek to have one particular style supplied them make sure that their carton maker determines whether or not patents exist on that style. This information is well known by carton manufacturers who keep up with all improvements.

With the exception of the most universally used cartons and display containers, no standardization exists in the exact names for the different styles. In so far as possible, in the following descriptions, the particular style given is that in most common usage, although variations will occur with various carton manufacturers, although the basis remains the same.

Specifying Dimensions: Due to the lack of uniformity or standard method of specifying the dimensions

* Robert Gair Co., Inc.

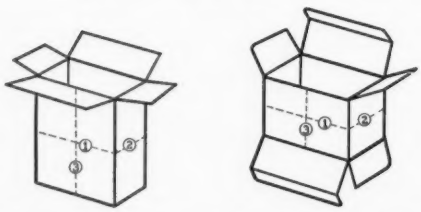

PILLIOD BOXES
FOR BETTER
Merchandising
THE PILLIOD CABINET COMPANY • SWANTON, OHIO

of a folding carton, causing frequent misunderstandings and errors in the industry, the Paperboard Industries Association adopted a simplified standard for stating the three dimensions of a folding carton.

Shown below are diagrams indicating, by number, the sequence in which specifications are to be presented. Thus, in the case of either carton or counter-display container, the following will apply:

1. The larger dimension at the opening.
2. The smaller dimension at the opening.
3. The third remaining dimension.

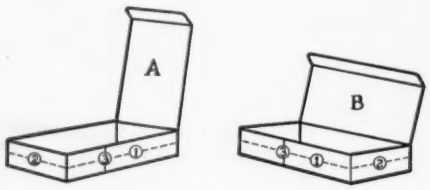
LEFT: SEAL (GLUED) END CARTON
RIGHT: REVERSE TUCK CARTON



All measurements are understood to be from center of crease to center of crease.

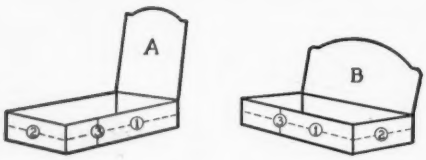
ONE-PIECE BOXES WITH COVERS

State whether or not cover extends from first or second dimension. (That is, whether like A or B.)



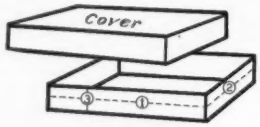
DISPLAY CONTAINERS

State whether or not display panel extends from first or second dimension. (That is, whether like A or B.)



TWO-PIECE TELESCOPE BOX

In two-piece boxes dimensions of bottoms are given



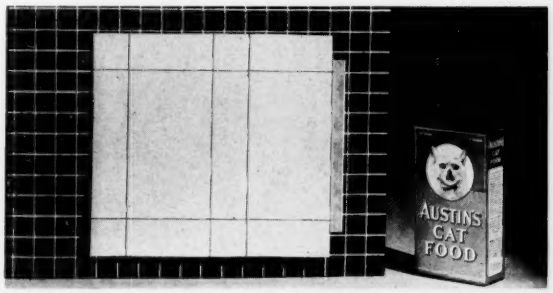
Adherence to this rule will greatly facilitate understanding and tend to make a uniform system.

The following pages illustrate the major types of folding carton and folding display container constructions. Although infinite variations in style and proportions are possible, the reader will find here the basic elements of every major type in use today.

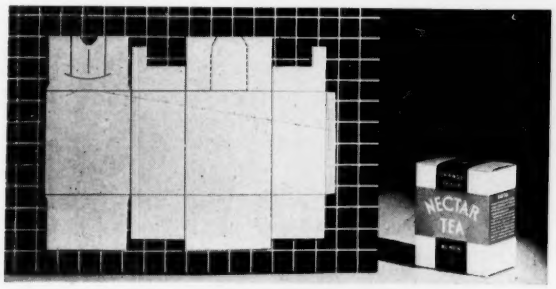
Illustrations consist of two elements. The right hand portion of each photograph shows a printed and assembled package, exactly as it would appear in the store. The left hand portion of each illustration presents a photo-diagram of the same package in the flat and unprinted, showing its construction and proportions. Solid straight lines indicate scoring edges; dotted lines indicate perforations or scores intended for tearing or opening of the container; cross hatching indicates glue seams.

The diagrams are photographed against a one-inch scale and the reader may thus compute the quantity of board required for the entire container, or any portion thereof, as well as the dimensions of the container itself when erected. Comparison may also be made by this method of various styles and of the relative quantities of board required by each.

It should be remembered, in figuring relative board requirements that cartons are usually die-cut and printed in multiple on large sheets and that the manner in which the cartons are laid out upon the sheet will determine the amount of waste and, hence, the average amount of board required per carton.



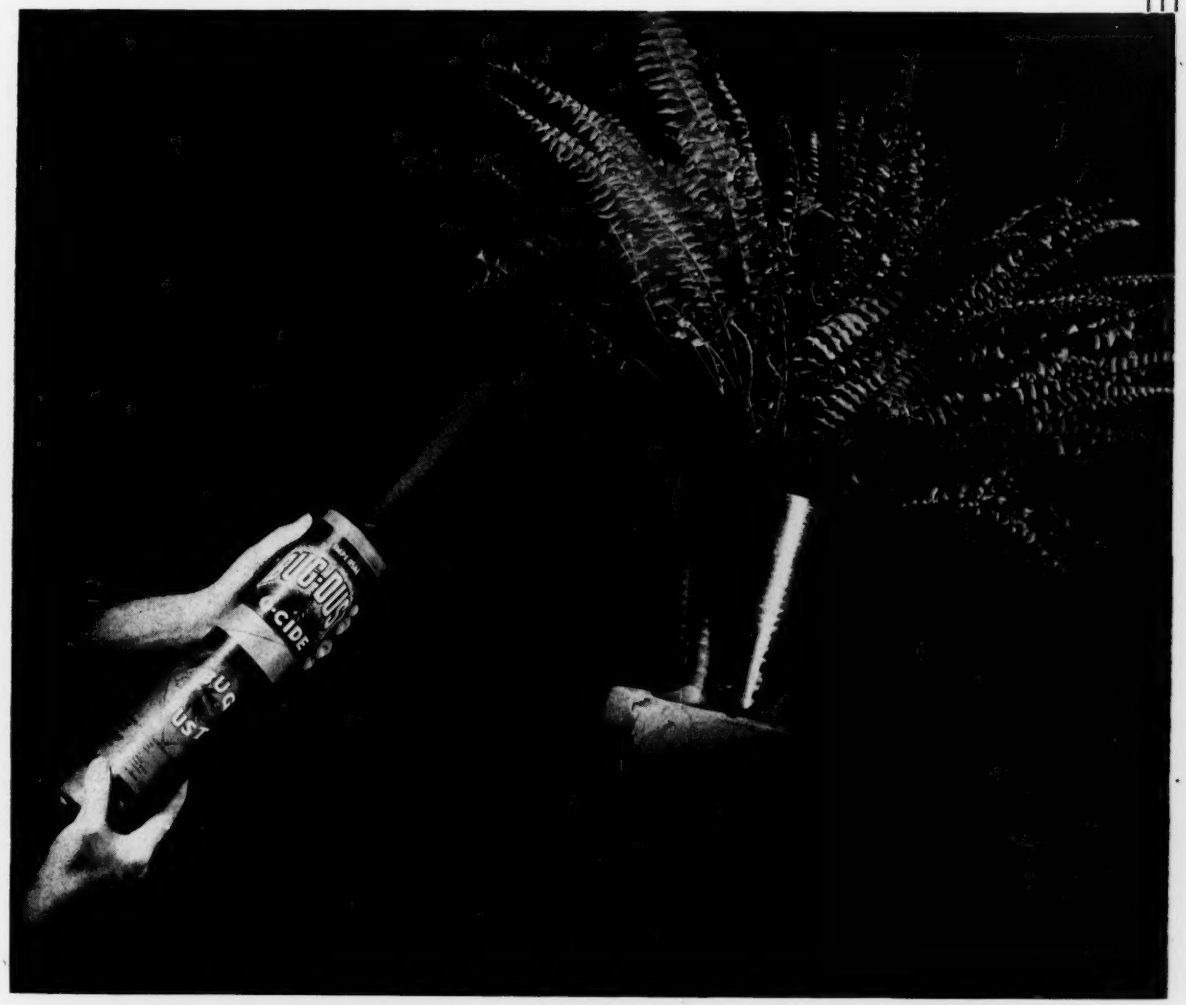
1. SEAL END CARTON. The most popular style carton for packing flour, cereals, sugar, salt, teas, coffees, spices, soap powders and a wide variety of products. Readily packed on high speed automatic machinery but difficult to seal by hand.



2. SEAL END CARTON WITH POURING SPOUT. Seal end carton, same construction as No. 1 with the additional feature of the patented pouring spout. This pouring spout makes it possible to dispense contents easily without spilling and affords a means of re-closing.

XUM

efficiency in dusting insecticides!



R.C. Can Co.

ST. LOUIS RITTMAN, O. KANSAS CITY



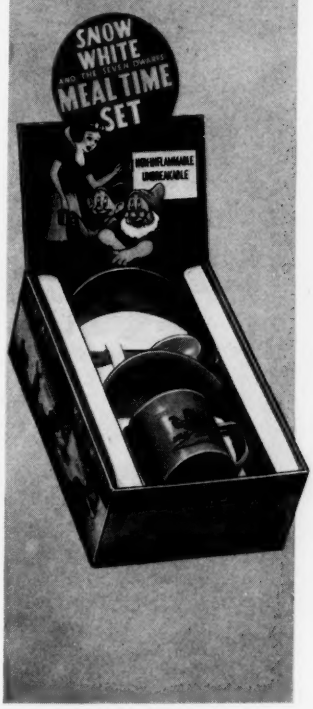
Harmonious variety can be given to a line by packages appropriately consistent in design. Note the group of Potter & Moore toiletries at the top of the page—the Kerk-Guild soaps below. Or, for an individual package that appeals through its quiet simplicity, the Volupte box that lies across the center band.

XUM



WARNERCRAFT

THE FINEST WORD IN PACKAGING

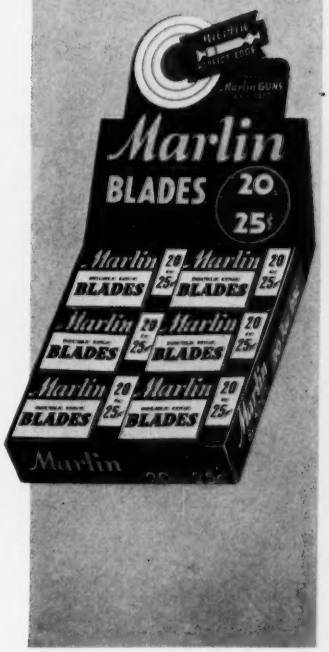


Can you spare a few moments to think about your product and its packaging?

Is it as appealing to you as you would like to have it? Is it practical for packing, shipping—for display—and for the customer? Is the package the best possible size? Is it of a quality in keeping with the product?

These are questions that we probably can discuss intelligently with you, for we have been designing and producing set-up and folding boxes for many years, for many exacting manufacturers in highly competitive fields.

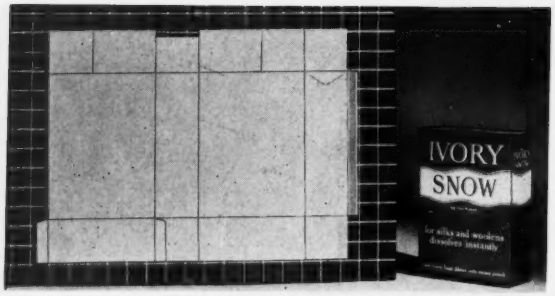
Would you care to submit samples of your packages to us for revision in design, improved construction or estimate of costs?



THE
WARNER BROTHERS CO.
Box Division

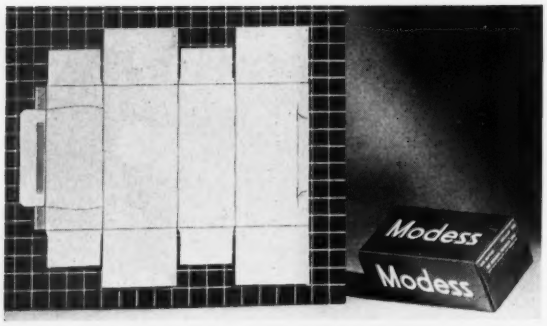
Bridgeport
Connecticut

200 Madison Ave.
New York, N. Y.



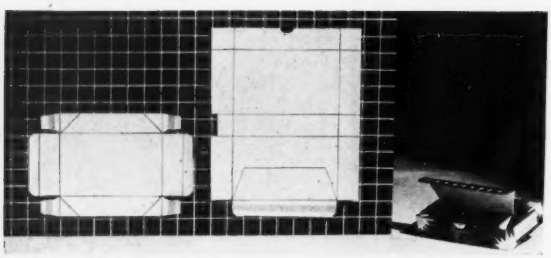
3

3. SEAL END CARTON for automatic packing and sealing. It is similar to No. 1 except that it has incorporated in its construction additional flaps on the bottom of the carton to prevent sifting. This carton is particularly suited for products which are milled or pulverized to such a degree that particles would sift through the regular seal end carton. This carton also has a unique pouring spout, which is formed by breaking the perforations in the top of the side panel. This is a patented type of carton.



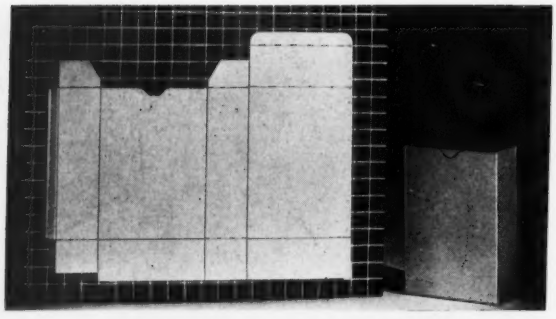
4

4. SEAL END BROADSIDE OPENER STYLE. An interesting development in a seal end carton which permits inexpensive, automatic filling through the ends of the carton which are later securely sealed. Carton is opened on the broad side, hence the name "Broadside Opener." Patented.



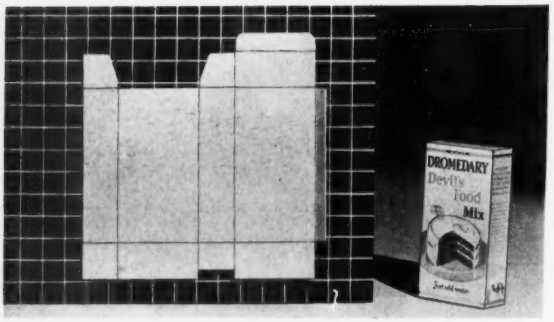
5

5. TWO-PIECE BROADSIDE OPENER. This is a variation of style No. 4 and is primarily used for the packaging of small pieces such as cube sugar. The individual pieces are first packed into the tray which is then easily inserted through the end of the outer carton. The outer carton is sealed automatically. The consumer can readily open the carton by breaking the spotted glue seam and tearing perforations. The container can be re-closed by the consumer by treating the hinged opening as an ordinary tuck flap. This is a patented type of carton construction.



6

6. TUCK TOP SEAL BOTTOM SHELL WITH TIGHT WRAP. Consists of a plain shell, often made of chip board, completely covered by a printed wrapper. Widely used for cereals and crackers. Requires automatic machine equipment. Outer wrapper prevents sifting, air deterioration and contamination from insects or dust. Newest development is to paraffin the printed side of wrap to give added protection to product. Wrap may be glued solidly to all six surfaces of the carton, or "spot glued" at certain points.



7

7. TUCK TOP, SEAL BOTTOM. Has the advantage of a solidly sealed bottom and convenience of the easily opened and closed tuck top, for ready accessibility to contents. Best suited to automatic packing because of difficulty of sealing bottom by hand. Note essential similarity to No. 6 with the exception of the use of printing directly on the carton blank.

XUM



ILLUSTRATED are just a few of the varied types of products which our extensive manufacturing facilities enable us to produce. Whether your box or display requires hand or machine work, or a combination of both, our craftsmen work in so wide a range of materials, that your product is assured the "dressing" best suited to its needs.

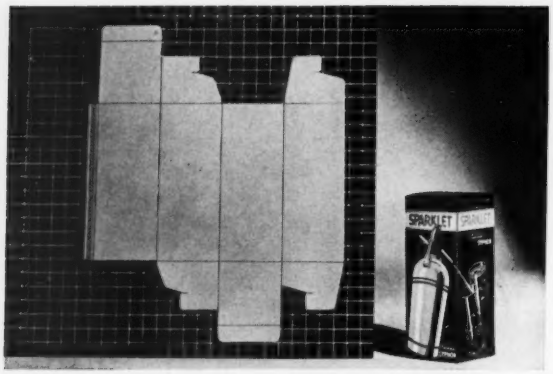
The leading jewelry and cosmetic manufacturers of the country have found our designing service so thorough and our manufacturing cooperation so reliable, that in many cases we serve as their exclusive source of supply. We regard such confidence with justifiable pride.

We shall be glad to have one of our salesmen trained in merchandising call on you to discuss your package or display problem, and to outline the extensiveness of our manufacturing facilities.

ARROW

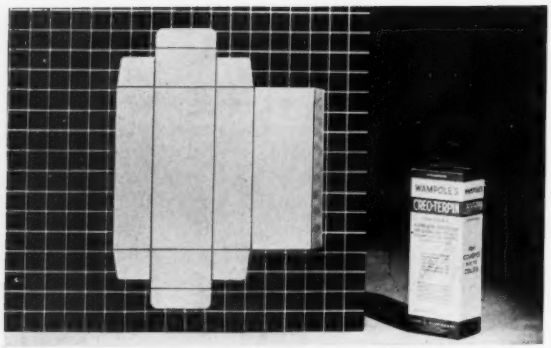
MANUFACTURING COMPANY, INC.

FIFTEENTH AND HUDSON STREETS, HOBOKEN, NEW JERSEY • Telephone HOboken 3-5472 or REctor 2-2480
Western Representative: George Boergerhoff, 29 East Madison Street, Chicago • Telephone State 7948



8–9

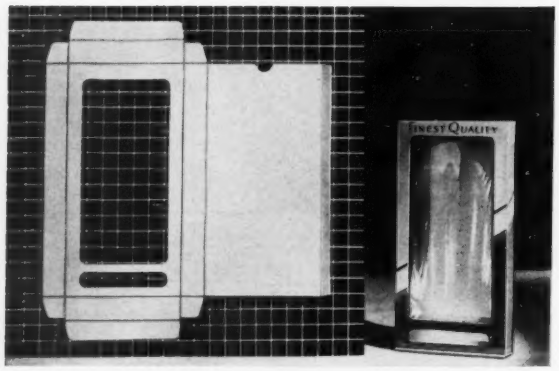
8. REVERSE TUCK CARTON. The most widely used of all carton styles for low-priced articles of all kinds. Easily set up by hand and adaptable to automatic packing. Convenient to open and close and exceedingly economical in manufacture because cartons interlock. This style not suited for heavy products, which must be held securely in the carton and require some positive means of locking the end tucks, or for powdery products, such as flour, salt and sugar, which are likely to sift through and thus require a seal end carton. Ready accessibility and low cost make this style carton ideal for five- and ten-cent units of candy such as cough drops, shaving creams and tooth paste in tubes. Type illustrated has special locking side flaps. See description No. 9 below.



10

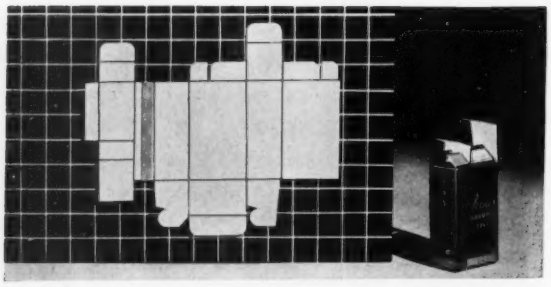
9. REVERSE TUCK CARTON WITH ARTHUR LOCKS. Side flaps, top and bottom, or just the bottom, lock to prevent heavy contents from breaking through. Used principally for packing jars and bottles containing toilet preparations, medicines and condiments, which must be held securely in the carton.

10. STRAIGHT TUCK CARTON. This carton has no advantage over reverse tuck carton, but is required and extensively used with high speed automatic cartoning machines. Must be made with right and left glue seams to secure economy of interlocking for economical manufacturing. Serves as an effective and satisfactory low price package for the same large variety of products using the regular reverse tuck carton. When used for products packaged in glass bottles, it is advisable to equip the bottom flaps with a positive locking device to insure against the possibility of the bottle falling out of the carton. Inserts or corrugated liner may be used for added protection of the product.



11

11. STRAIGHT TUCK CARTON WITH TRANSPARENT CELLULOSE WINDOW. Contents of this package fully protected from soilage yet visible to consumer through transparent window.



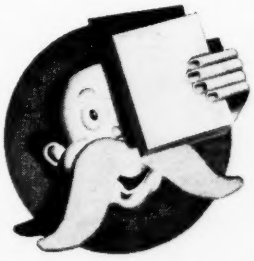
12

12. STRAIGHT TUCK CARTON, "2 in 1" STYLE. Patented carton made with an inside divider which, when folded into position, forms two separate compartments. Made in one piece, delivered in conventional knocked-down form. An ideal carton for a combination sale, such as a shampoo and a hair tint, or a bottle with medicine dropper or dispensing unit.

Full Consideration FOR DETAILS

IF IT'S A **MICHIGAN CARTON**—IT'S RIGHT!

The "minor considerations" of a packaging problem are often handled carelessly. Scores of details that are fundamentally important must be given the utmost consideration. It requires intelligent planning to produce a sales-stimulating carton. Our design and production staff are at your disposal.

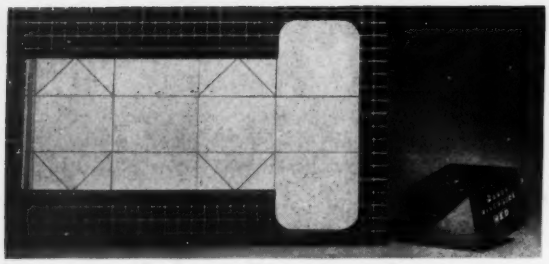


Designers—Manufacturers of Folding Cartons

MICHIGAN CARTON CO.

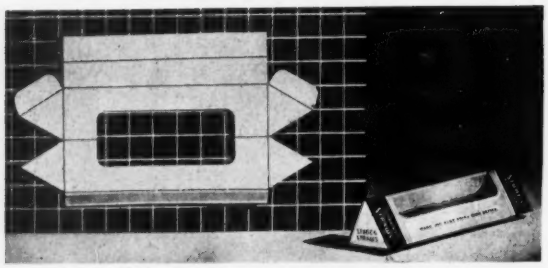
GENERAL OFFICE: BATTLE CREEK, MICHIGAN

DIVISION SALES OFFICES AT: CHICAGO, ILLINOIS, AND DETROIT, MICHIGAN



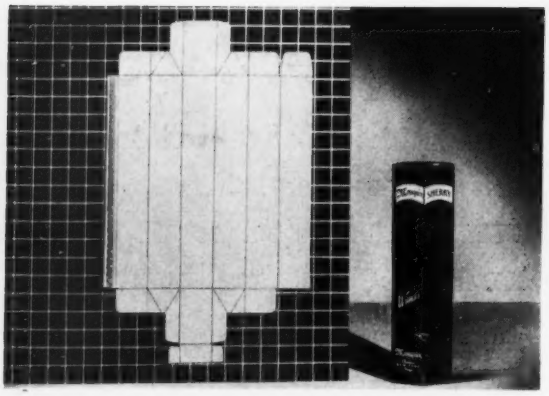
13

13. BELLOWS-END CARTON. Web end construction forms a strong and tight end closure by hand assembly. Carton may be opened and tightly re-closed at will. Note simplicity of construction. Web end construction provides substantial protection against sifting when granular or crumbling products are packed in this type of carton.



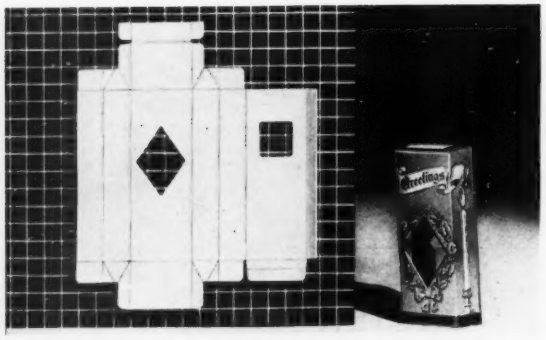
14

14. TRIANGULAR STRAIGHT TUCK. This novel shape carton is easily assembled and filled by hand. Its shape and location of transparent window makes an unusual display of contents. In packing, alternate layers of cartons are reversed so that window portions are protected by the side walls of the cartons they rest upon. Note how rear wall (i.e., wall immediately opposite die-cut window) is scored to permit the pasted carton to be shipped flat.



15

15. HEXAGONAL CARTON, TUCK TOP AND LOCK BOTTOM. A patented carton that combines novelty with ease and speed of setting up. Quick-closing top requires only a single tuck or flap, while the Hibson lock bottom insures a permanent seal. Capable of holding the weight of a comparatively heavy inner package, such as a wine bottle, liqueur bottle or other product packed in glass. Types of this sort are extensively used for display purposes and as seasonal promotional cartons for products ordinarily merchandised in their glass containers alone.



16

16. RECTANGULAR CARTON, TUCK TOP AND LOCK BOTTOM. Same as Style No. 15 except that it can be made for flat or rectangular shaped products. The diamond shape and the rectangular die-cut walls found on the front and back faces of the unit here shown are designed to permit the display of labels on the inner container to meet merchandising or legal requirements. This is a patented type.

Mastercraft

DE LUXE RE-USE *Gift Containers*

for.....

CAKES
CANDIES
CIGARETTES
CIGARS
COOKIES
CORDIALS
COSMETICS
FANCY SOAPS
FRUIT CAKES
GLACE FRUITS
GLOVES
HABERDASHERY
JEWELRY
LINGERIE
LIQUEURS
PERFUMES
SILK STOCKINGS
TOBACCO
TOILET WATER
WINE
WHISKEY
ETC.



Mastercraft Re-Use Gift Containers are more than just a package. Their inherent dignity of design and finish lends that extra touch to your product which immediately distinguishes it from others in less "formal dress."

Tailor-made in quantities of 1000 or more in leatherette, genuine leather, metal paper or metal in a wide variety of color combinations. Designed, finished and decorated to suit your requirements.

We will gladly cooperate with your packaging department in fitting a Mastercraft Re-Use Gift Container to your product. Write, stating items in which you are interested, and we shall be pleased to quote prices and submit samples. Or, if you desire to discuss Mastercraft Re-Use Gift Containers with our representative in your territory, we shall be pleased to have him call on you.

PERMANENT REMEMBRANCE ADVERTISING

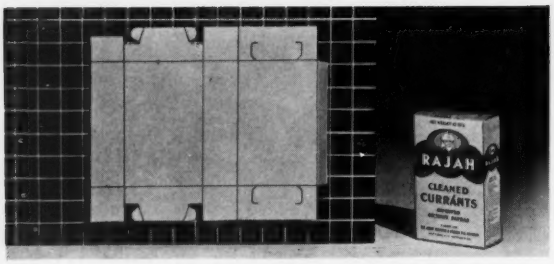
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POINT-OF-PURCHASE APPEAL

NEW YORK OFFICE
225 FIFTH AVE.
NEW YORK, N. Y.

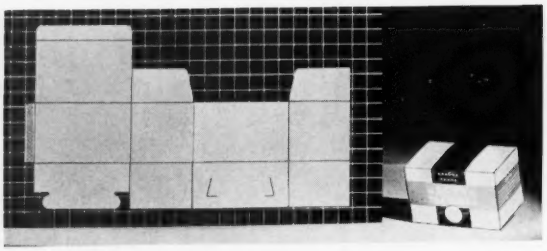
MAIN OFFICE AND FACTORY
—MASTERCRAFT—
DIVISION
—HARLICH MFG. CO.—
1401-1417 WEST JACKSON BLVD. CHICAGO, ILL.

LOS ANGELES OFFICE
1147 WALL STREET
LOS ANGELES, CALIF.



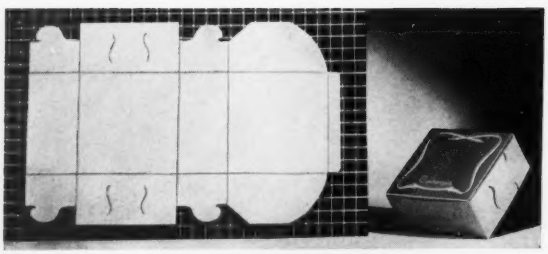
17

17. GREENLEAF LOCK CARTON. Locks at each end securely. Widely used for packing dried fruits and other heavy bulky products. Also serves as a packer or carrier unit for a number of individual cartons. Locks of this type provide sufficient strength to support a comparatively great inner package weight, yet are so constructed as to permit of fairly frequent opening and re-closing by the consumer.



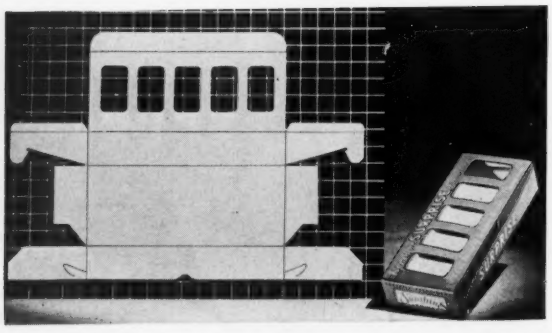
18

18. TUCK TOP CARTON WITH GREENLEAF BOTTOM. Combines the ease of closing a regular tuck top with the safety of a securely locked bottom, to prevent possibility of heavy contents falling out of carton. Quickly closed by hand. Use of the special lock bottom adds slightly to carton cost but is often found desirable for heavy products.



19

19. ONE-PIECE CARTON WITH FOUR HOOK CATCHES. An economical carton for local bakery use where small quantities of several sizes are required. Two catches on each end holds the carton upright. This style is not sufficiently durable to stand long distance transportation or rough handling, but is used by bakeries for packaging cake sold in their own retail stores and carried home by consumers. Also used on routes for delivery-trucks-to-consumer purchases in which case it is frequently made with a window of transparent cellulose.



20

20. PETERS LOCK CARTON. Derives its name from Peters' machines which are used for automatic forming and lining. Widely used for biscuits, crackers, lard and shortenings and adaptable to wide variety of large volume products. The multiple window cut-outs in the assembly here shown are designed to provide a high degree of visibility for the assorted items packed in this unit while, at the same time, maintaining the strength and rigidity of the carton-board. A single strip of transparent material would be utilized to form all five windows with a single applying operation.

More Than Boxmakers...



BISLER OFFERS ALL-ROUND PACKAGE SERVICE

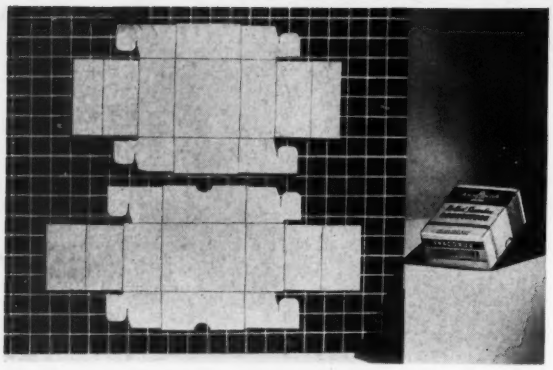
For over 60 years, we have been producers of distinctive paper boxes!

Come to us for packaging information, ideas, and plans.

G. A. BISLER, INC.

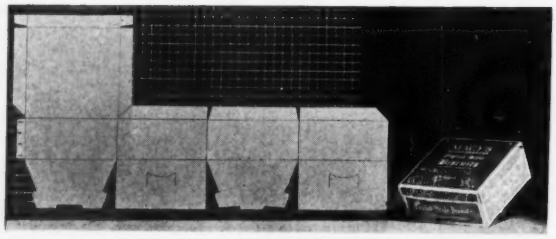
FIFTH AND BROWN STS., PHILADELPHIA, PA. 55 WEST 42ND STREET, NEW YORK

"BISLER BOXES BRING BUSINESS"



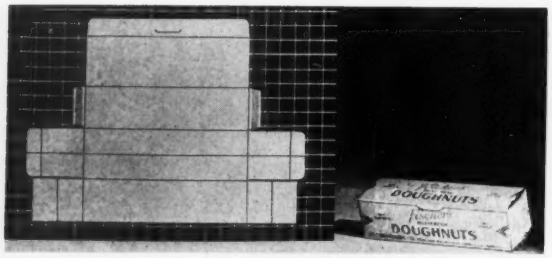
21

21. TWO-PIECE TELESCOPE CARTON WITH OVERLAPPING ENDS. This style carton assembled and folded by hand. Ends overlap and are held against the side by friction, but may be glued for additional reinforcement. A development of the overlapping end carton is an extra length tab provided as an additional protection on the top and bottom. A similar reinforcement along the sides can be provided for strength



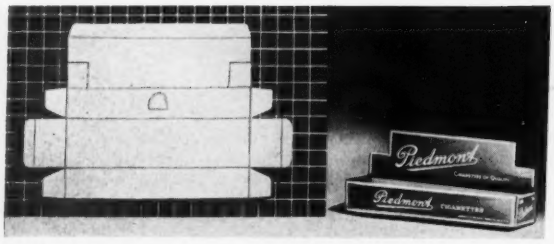
22

22. QUICKLOC STYLE CRACKER CADDY. Originally a caddy was a container for bulk goods which were dispensed in small units. Illustration shows one holding several pounds of crackers which is bought by many consumers. One-piece collapsible construction with patented bottom which is quickly set up. Two corners of cover require metal stitching by user. Note how the construction of the bottom flaps provides a multi-layer bottom when the caddy is erected.



23

23. ONE-PIECE COLLAPSIBLE CARTON. A simple one-piece container serving as a carrier especially useful where quick set-up and low cost are factors. Used for bakery goods, cigarettes and many other products. Shipped to user in knocked-down form, so that it occupies a minimum of storage space. Note cross hatch glue seam indications. These tabs adhere to the outer ends of the bottom-most tabs. The intervening wall forming the bottom of the container is scored to fold in half, lengthwise, when shipped. This is snapped into erect position and given required rigidity by turning up the side wall tabs.



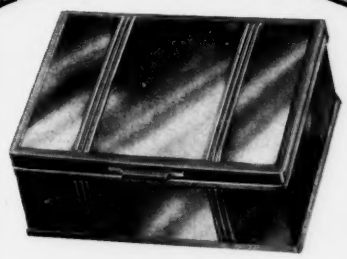
24

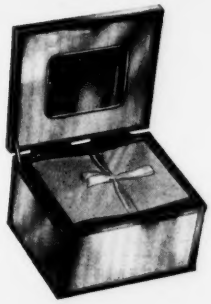
24. ONE-PIECE BRIGHTWOOD STYLE CARTON. A widely used one-piece carton for large scale production. Automatically formed, glued along the vertical panels, filled and sealed by Brightwood machines in the package user's plant. Definite economies in packaging can be effected by the use of this style carton if sufficient production is regularly handled to justify the use of this automatic equipment.

MODERN GIFT PACKAGING

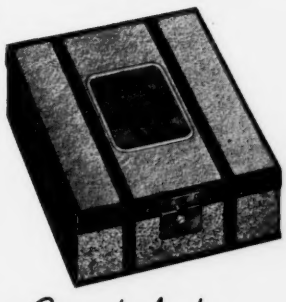
FOR THE NEW ERA OF Merchandising

STONE ARTISTRY IN PACKAGING
WILL STIMULATE THE SALE OF ANY GOOD PRODUCT









Created by **STONE**





Created by **STONE**

The **ARMOUR CO. LUXOR GIFT PACKAGE FOR 1938 . . .**

The Armour Co. Luxor Gift Box of 1938 is a new creation of metal lined with California Redwood, finished in rich copper hammertone. Trim is copper embossed banding in a contrasting shade. Strength was not sacrificed to beauty in construction, nor quality neglected in any detail. The ARMOUR CO. Luxor Gift Package was designed to be a worthy container for the fine toiletries it contains. We are proud indeed to have had the opportunity of designing the ARMOUR BOX for 1938.

WHEN CONSIDERING NEW SALES PLANS, LET US SUBMIT

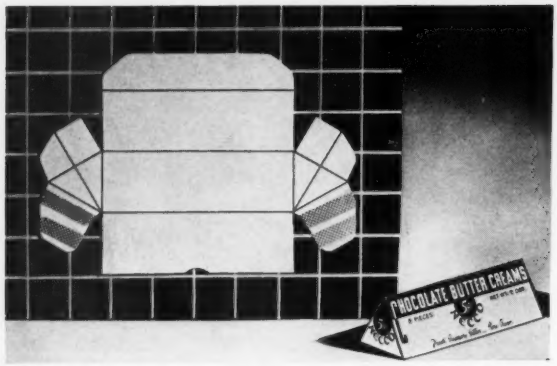
A NEW PACKAGING *Idea*

Write us . . . no charge, no obligation . . . let us submit samples of STONE packages suitable for your particular product. Many years of experience enable us to make suggestions which will add to the merchandising success of your sales campaign. A new packaging idea can be the nucleus of a great upswing in sales of your product.

STONE BROS. INC. • 800 SOUTH ADA STREET • CHICAGO

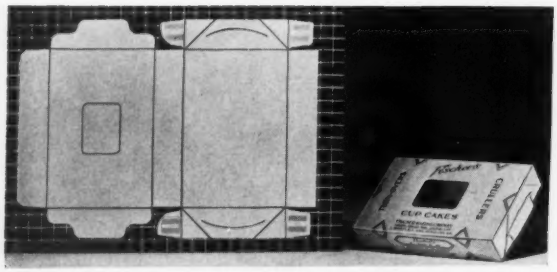
STONE

ARTISANS IN PACKAGING



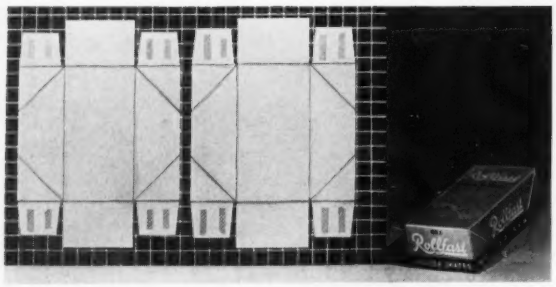
25

25. TRIANGULAR CARTON. This carton is received in a glued knock-down form. It is easily assembled for filling by pushing the ends inwardly. After filling, the carton is closed by tucking in the top panel. Its novel shape adds display value to the individual carton. Note score lines on side walls. The folding of these walls permits shipment of the pre-glued carton in the flat.



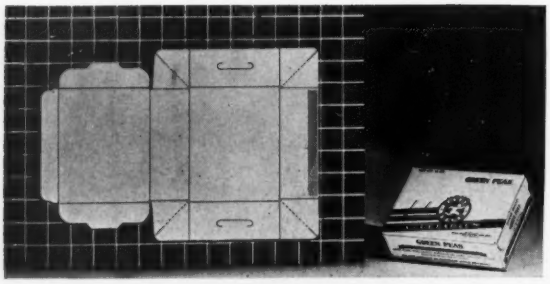
26

26. ONE-PIECE COLLAPSIBLE CARTON. A quickly set-up carton, made with tongues on the cover which tuck into slots on the sides, making this style especially well suited for bakery goods and similar products. Furnished with transparent cellulose window to allow view of product without opening carton, which is a most important factor in keeping food products fresh and avoiding spoilage from exposure to dust, dirt, flies or frequent handling prior to sale. Is sometimes used with an inner band or liner, placed around a cake, the carton being made sufficiently high to prevent the cover coming into contact with the frosting.



27

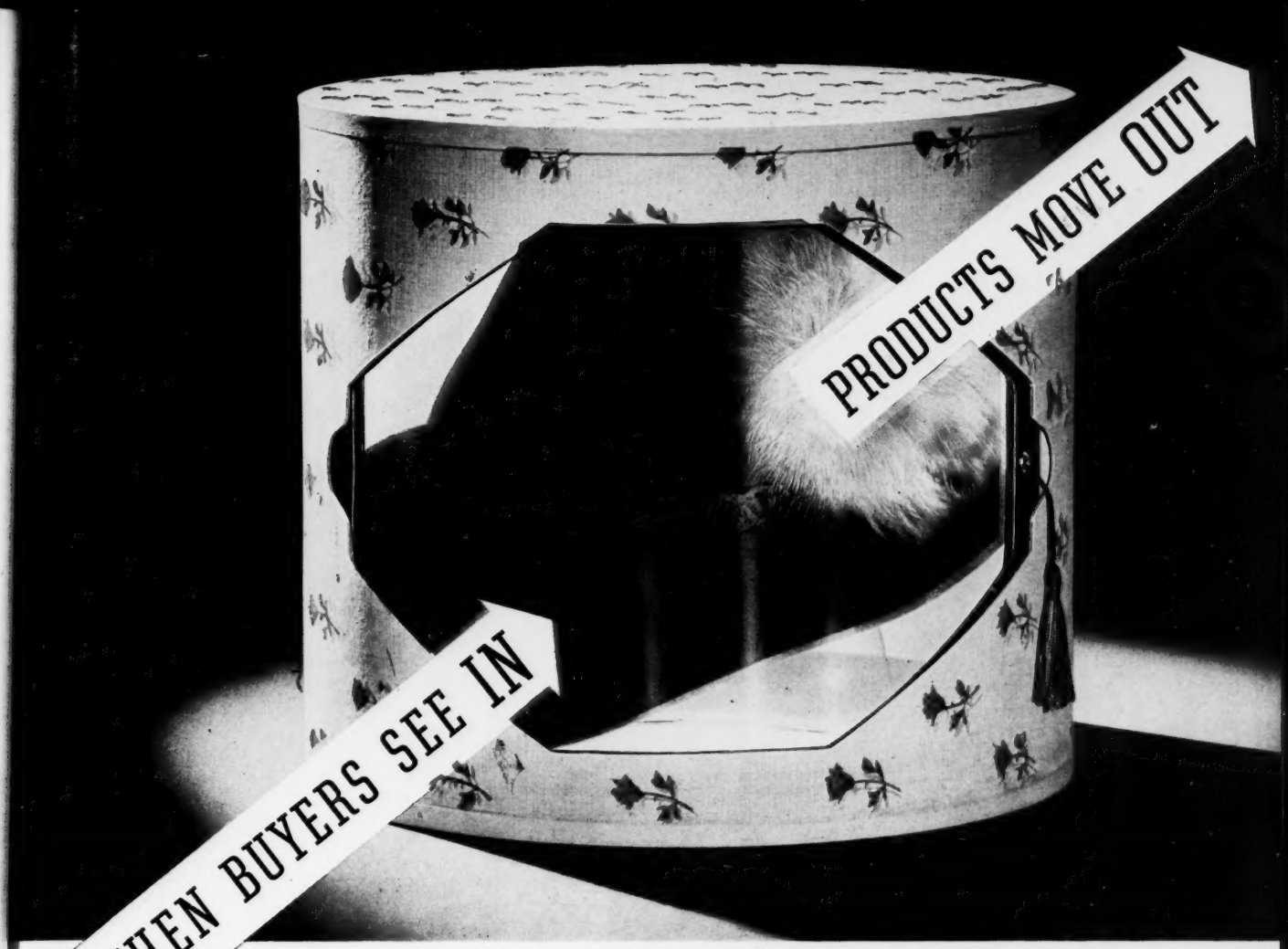
27. TWO-PIECE FULL TELESCOPE CARTON. These cartons are glued in collapsible form by carton manufacturer and shipped to user in that manner. Quickly set up by infolding to an upright position. Note that top half of container is slightly larger in all dimensions than lower or bottom half. This permits of telescoping without distortion of the container. Size, in such instances, must be accurately controlled to provide a tight—but not too tight—fit.



28

28. ONE-PIECE WEBB ENDS AND SNAP LOCKS. This carton, delivered in glue tube fashion, is easily and quickly assembled. The carton shown was primarily developed for frosted foods, which require tight end closures and ease and speed in packing. It is well suited for various other types of products which require features mentioned above plus economy. Patented.

XUM



Products should be *seen* and not *hurt*. Every able merchandiser knows it—but how can the double advantages of visibility *and* protection be obtained with conventional packaging materials?

The answer is Monsanto Vue-Pak, used in conjunction with paper, cardboard, wood, leather or opaque plastics—as well as in complete transparent packages. Crystal-clear windows or box lids of Vue-Pak let customers see *in*...help products move *out* from stores to homes.

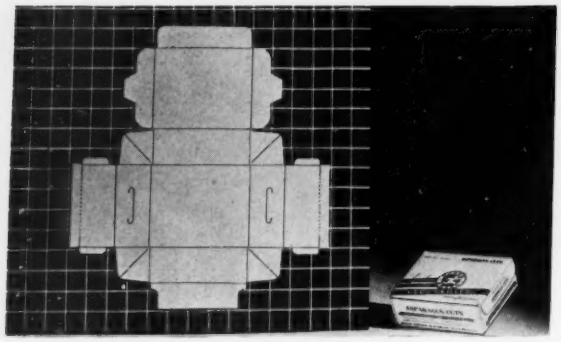
Vue-Pak is a safe packaging material. There is a weight, tough and sturdy, for any box or tube—combining easily with other materials for *seeable* and *sellable* packages. Vue-Pak may be stapled, cemented or seamed by conventional methods. It takes printing and embossing readily.

Whether your package will be partly or wholly of transparent material, Monsanto is ready to assist. Design and technical service are available without cost or obligation. We invite your inquiry, addressed to Monsanto Chemical Company, Plastics Division, Springfield, Massachusetts, or to Plastics Division district offices in New York, Chicago, Detroit, St. Louis, Los Angeles and Montreal, Canada.

MONSANTO PLASTICS

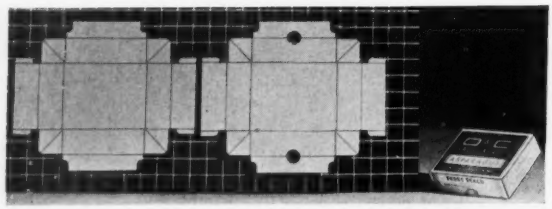
PRODUCTS OF MONSANTO CHEMICAL COMPANY





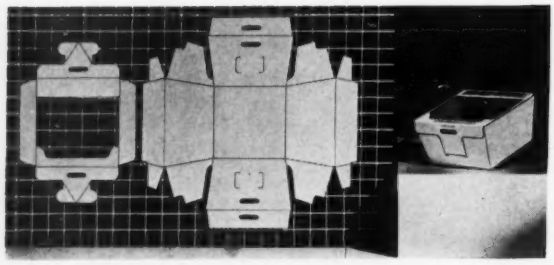
29

29. ONE-PIECE SIMPLEX STYLE CARTON. Combines rigidity, finish and strength of set-up box and economy in cost, shipping and storage of a carton. Quickly set up without machinery. Made in all sizes from small candy boxes to large containers for blankets. One-side printing. Made with or without display lids and slip-over covers. No raw cut edges or outside locks mar the outside printed surfaces or finished appearance of the carton. Patented.



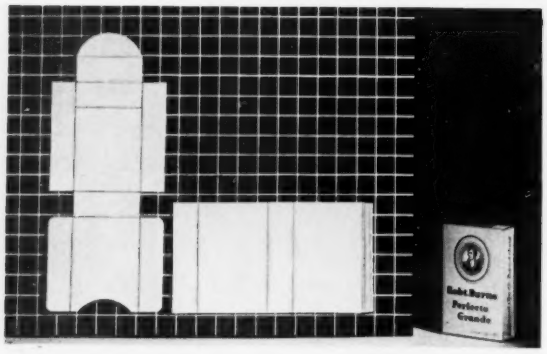
30

30. TWO-PIECE SIMPLEX STYLE CARTON. A carton construction which is rigid, easily set up and free of locks or tabs on exterior surfaces. The web corner construction prevents leakage when packing frosted foods. This style is also adaptable for shoes, textiles and other types of products requiring a two-piece carton. This is a patented type.



31

31. BERRY AND VEGETABLE CARTON. This type of carton has proved its adaptability to replace the ordinary wooden basket used for berries, small fruits and vegetables. Overlapping sides are wire stitched to set in proper position for use. Raised bottom and slotted sides insure proper ventilation for contents. Can be equipped with transparent window cover with locks to hold it secure. Patented.



32

32. TUBE AND SLIDE. Consists of a folding inner portion, variously contrived, to be inserted in a tube on which the design is printed. Access to the contents is easy and quick. It offers adequate protection for a wide variety of products, such as cigar packs holding five or ten popularly priced cigars. When this style is made with an inner tray it is well suited for pills and capsules which may be carried in the consumer's pocket.

XUM



When PACKAGE MAKING means PACKAGE ENGINEERING SEFTON CAN LICK YOUR PROBLEM

Sefton makes all different types of fibre cans for dry products. Sefton efficiency, Sefton service and Sefton location have won for us the patronage of a coast-to-coast army of careful, cautious can purchasers.

But efficiency, service and ideal location are only a part of what Sefton has to offer. Witness this new can, developed for Perfect Circle by Sefton's engineers.

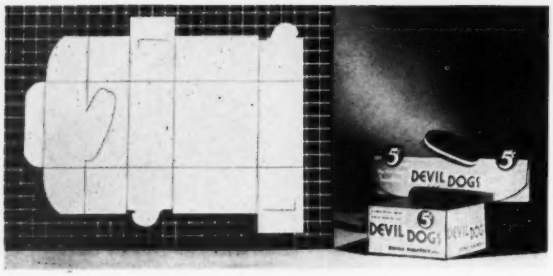
Up to now, cans which sealed in motor parts had to be cut apart to effect opening. To make Perfect Circle Piston Rings easy to get at, yet tamper-proof and counterfeit-proof, we developed the String Can. A pull of the little white cord and—presto—the can is opened, the product ready for use and the container effectively destroyed as protection against unlicensed substitution.

Just one of more than fifty engineering achievements of Sefton's Development Department, made during the last year for our clients. Of course, we'd like nothing better than to talk over your problems with you. Will you write us.

SEFTON FIBRE CAN COMPANY

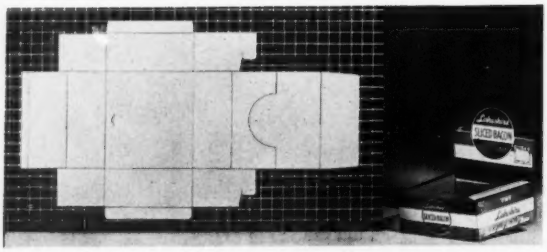
Plants—St. Louis, Missouri • New Iberia, Louisiana

DISTRICT OFFICES: Los Angeles, San Francisco, Denver, Tampa, Chicago, Des Moines, New Orleans, Boston, Detroit, Kansas City, St. Paul, Omaha, New York, Cincinnati, Cleveland, Oklahoma City, Pittsburgh, Memphis, Nashville, Dallas, Houston, Salt Lake City, Seattle.



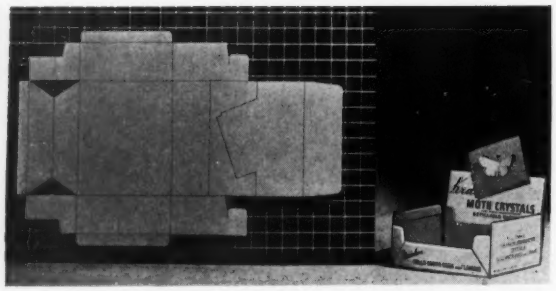
33

33. ONE-PIECE CARTON WITH TWO HOOK CATCHES. An economical carton for local bakery use, where small quantities of several sizes are required. A catch lock on each end holds the carton upright. This style is not sufficiently durable to stand long distance transportation or rough handling, but is used by bakeries for packaging cakes sold in their own retail stores and carried home by consumers. Also used on routes for delivery-truck-to-consumer purchases, in which case it is made with a window of transparent cellulose.



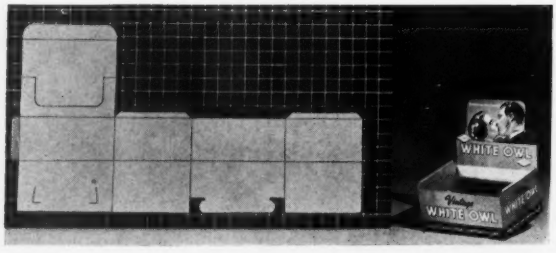
34

34. ONE-PIECE OVERLAPPING FRONT—LOCK BACK PANEL, FOLD COVER. Economical to manufacture and extensively used for display purposes, this box has the added strength of the overlapping front which is not provided in the straight front box. The box can be made with panel-fold style display top, making possible the economy of printing on only one side of the sheet.



35

35. ONE-PIECE OVERLAPPING LOW FRONT DISPLAY CONTAINER. Similar to No. 34 except front is cut down to show face panel of articles when they are packed in an upright position. The tuck flap at the top of the container should be made long enough to provide full protection for the packaged contents at the front corner, where the low wall of the display container offers a relative weak point.



36

36. PANEL-FOLD DISPLAY CONTAINER WITH LOCK BOTTOM. Simple in construction and setting up. Cover is so arranged as to make an attractive display panel. Protective cover is optional. Stands flat on the counter and provides good visibility to the displayed items. Requires printing and coating only on one side of the board.

XUM

ALL OVER AMERICA!

Each year more and more of America's best selling products are packaged in the wide variety of Gardner-Richardson Folding Cartons. Milk and Motor Oil, for instance, are two recent additions to the hundreds of products that benefit from the protective and sales-producing qualities of Gardner-Richardson Cartons.

Whatever your problem or product, investigate Folding Cartons by Gardner-Richardson before you select your package. You may be repaid for your foresight with a package that combines greater economy, better protection and greater point-of-sale appeal.

Write today for complete information including facts about Package Design Service for users of Gardner-Richardson Folding Cartons.

GARDNER-RICHARDSON
Special Carton Boards

In addition to regular carton board, Gardner-Richardson offers the following special boards whose unusual characteristics can be used in any combination:

LITHWITE—a smooth, brilliantly white box board for improving the appearance of your carton economically.

HYDRO-TITE—for moisture-proof protection of packaged products.

GREASENE—for economical protection of products with grease or oil content.

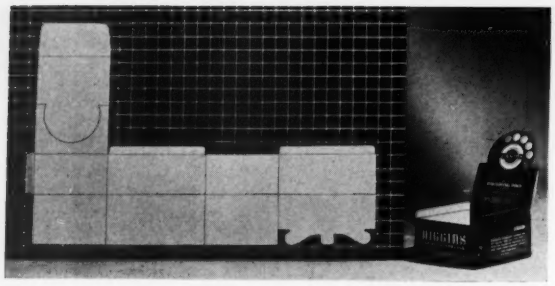
GREASENE LINER BOARD—a special grease resistant liner for shipping containers.



THE GARDNER-RICHARDSON COMPANY, *Middletown, Ohio*

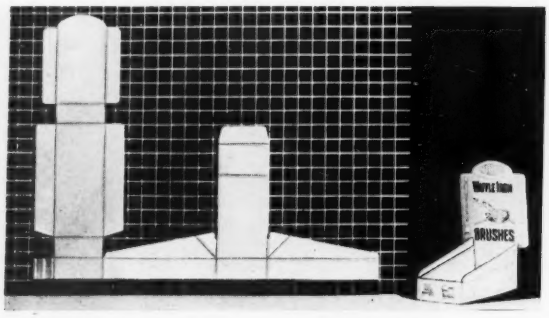
Manufacturers of Folding Cartons, Boxboard, and Specialties

Sales Representatives in Principal Cities • Philadelphia • Chicago • St. Louis • Boston • New York • Pittsburgh
Detroit • Cleveland



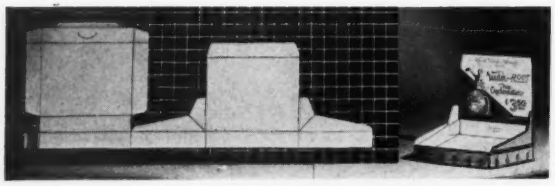
37

37. PANEL-FOLD DISPLAY CONTAINER—WITH THREE CATCH LOCK BOTTOM. Same as No. 36 except bottom has three catches to carry heavier contents. The reader will note the wide number of variations in tab locking devices which are available to secure either ease of opening, sturdiness, the ability to carry weights, or some special feature such as tamper-proofness.



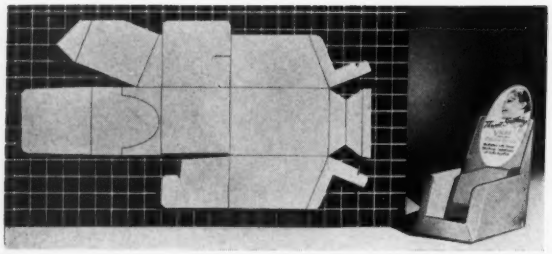
38

38. BROOKS DOUBLE-COVER DISPLAY CONTAINER. An elevating display in which the retailer must set up the display panel in order to uncover the contents, with a positive wing type support for elevated section of the container. An important feature in containers of this type is the element of fool-proofness in respect to the dealer. The ideal calls for a unit for which there can be only one way—the correct way—of opening for display purposes. Short of this ideal, the fullest, simplest and best illustrated descriptions for setting up will prove of aid to the dealer.



39

39. BROOKS TILTING DISPLAY CONTAINER. This style is equipped with a rear tab which the dealer elevates and secures in the rear panel, effectively displaying the merchandise at a desirable angle. This tab may be seen as indicated in the diagram-photo, upper left hand corner. This is a patented display container type of construction.



40

40. RHOMBOID DISPLAY CONTAINER. The sloping sides and special construction of this container permit of displaying goods in slanting tiers. Provided with protective sleeve, it may be shipped packed in set-up form ready for dealer to display. Well suited for small items such as cartoned bottles and tubes. One of a number of variations of the Rhomboid class.

XUM

GIFT CONTAINERS *Designed* TO FIT YOUR PRODUCT



If you are one of "The Favored Few" whose merchandise was packaged in a SMITHCRAFTED gift container in 1938 you will appreciate the value that the restricted use of these expressions of quality in packaging has represented.

If you did not receive the benefits of this "exclusive" feature in your 1938 gift package then you might be interested in the story of the success which every one of "The Favored Few" had in their SMITHCRAFTED packaging efforts in 1938—and we will be glad to tell you about them and to substantiate the story with facts and figures.

We serve only a limited number of clients in the packaging field and welcome inquiries from organizations that sell "quality of product" rather than "price"—and who are open minded on the subject of merchandising their product through a means that has proven its acceptance with the buying public.

For such organizations we have a worth-listening-to message.

Illustrations are not of just "samples" but of actual jobs produced for Prominent National Concerns. They indicate wide range of sizes, shapes, materials and designs possible in SMITHCRAFTED containers;—first,—a metal sheathed box in simulated chased silver design; second,—an exquisite tooled leather effect book box in kidskin white; third,—a cameo embossed leatherette box of unusual shape in contrasting colors; fourth,—a round metal lined box in red Chinese carved cinnabar effect with worked brass lid; and fifth,—a massive chest (17½ x 13½ x 5) of embossed burgundy leatherette and substantial construction.

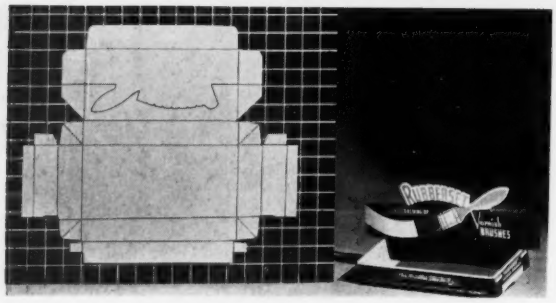
SMITHCRAFTED Containers are designed to most effectively merchandise the individual product—all having the added sales appeal of very obvious after-use.

THE S. K. SMITH COMPANY

2857 N. WESTERN AVENUE **CHICAGO, ILL.**

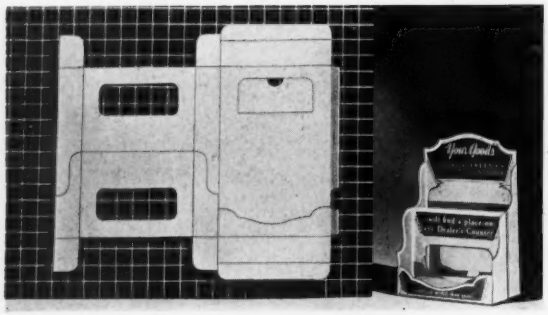
New York Office, 52 Vanderbilt Ave., MUrray Hill 9-8290

SMITH CRAFTED CHICAGO



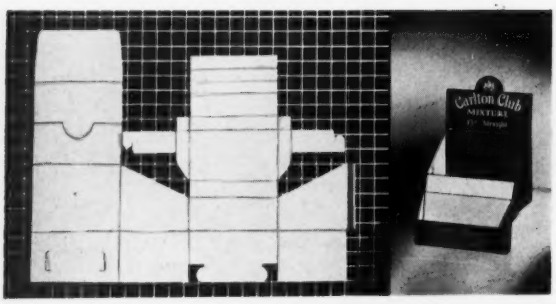
41

41. ONE-PIECE SIMPLEX CARTON DISPLAY. An efficient container and display unit. Die-cut cover offers excellent advertising display. Easily set up and free of locks on the exterior surfaces. Its most popular use is for one-dozen units such as paper wrapped toilet soaps, automotive or hardware items. Does not require protective sleeve as cover closes with front and side tucks. The side tucks, furthermore, increase the size of the display panel itself.



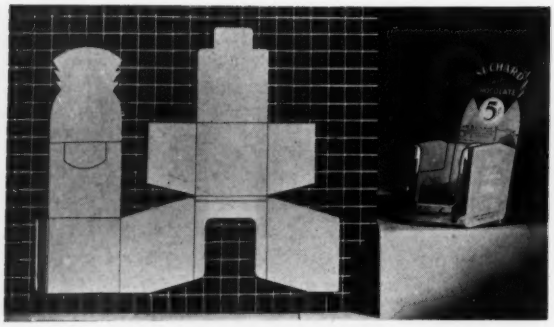
42

42. SKYSCRAPER (BROKEN BACK) DISPLAY CONTAINER. Patented container for displaying products in two tiers in an upright or "skyscraper" manner. Made with easel to hold second tier in raised position. Scored in center so that for shipping it folds up, but is readily set up for display by the dealer. When folded for shipping, the two halves of the unit so interlock as to form one flat, rectangular carton with all merchandise protected on all sides.



43

43. FRONT PANEL, LOCK BOTTOM DISPLAY CONTAINER WITH POCKET. An ingenious display by which contents are sold from the stock packed in the main portion of the container, while the pocket front permits an effective continuous display of the actual article. Prevents unsightly gaps in the display line, which is a weakness in many display containers. Note how the pocket front hangs below counter level or level of step on which main portion of display rests.



44

44. DARRAGH DISPLAY CONTAINER. The main feature of this unit is that contents, when loaded for shipment, are in an upright rectangular position, but when ready for counter displaying, they are thrown to a stacked position offering excellent visibility. On display the contents slant backward with their front faces at right angles to the consumer's eye. Frequently used for tall products such as candy bars, wrapped candies, and similar items.

XUM

XUM

XUM



GOLD

Honor your product with Ridgelo Gold Coat—for cartons, display containers, cutouts or folders. Its brilliant appearance—its protective qualities—its price, all make it an outstanding value among metallic coated boards. Printing and folding Ridgelo Gold Coat are easy—one or two color impressions are enough because this lustrous surface has such distinctive appeal alone! ● Protection against soiling, water resistance and a durable, rugged finish make the new Gold meet countless functional demands too. Ready to ship in sizes 28 x 44 and 28 x 22, thicknesses .012, .016 and .024, coated one side.

When awards such as the Carnegie Medal are made for acts of heroism and distinguished achievements of all kinds, the first and highest place belongs to gold.

MADE AT RIDGEFIELD, N. J. **Ridgelo** BY LOWE PAPER COMPANY

Ma[illegible] of RIDGELO Clay Coated Boxboard
[illegible] White and 16 Litefast Colors
[illegible] printed in [illegible] colors on a
[illegible] Flex metallic coated board.

XUM



Paul Revere conceived this fluted service with its chaste, formal lines—one of his finest departures from the earlier colonial rounded patterns. All silversmiths of the 18th century used molten coins for no silver had been found in the colonies.

A *Silver "Service"*
THAT YOU CAN USE

The new Ridgelo Silver Coat is as rich as a treasure. Its soft sheen enhances the finest design, embellishes the simplest—and so packages of Ridgelo Silver reflect the greater values they enfold. ● Modern package users can adopt this new board at much lower cost than other metallic finishes. Yet Ridgelo Silver Coat has a lasting surface—holding its beauty against handling, dirt, moisture *and* time. ● Try it through your printer, carton maker or designer—sizes 28 x 44 and 28 x 22, thicknesses .012, .016 and .024, coated one side. If you have special requirements almost any body stock can be Silver coated to give the desired effect. Let us have your problem.

Ridgelo
CLAY COATED

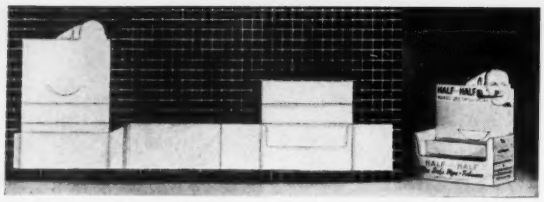
MAKERS OF EMBOSSINGS, LAMINATINGS AND SPECIALTY COATINGS.

MADE AT RIDGEFIELD, N. J. BY LOWE PAPER COMPANY

Representatives: E. C. Collins, Baltimore • Bradner Smith and Company and Mac Sim Bar Paper Company, Chicago • H. E. Boyer & Hart, Blake, Moran & Towne and Zellerbach Paper Company, Pacific Coast • A. E. Kellogg, St. Louis • W. P. Bennett & Son, Toronto

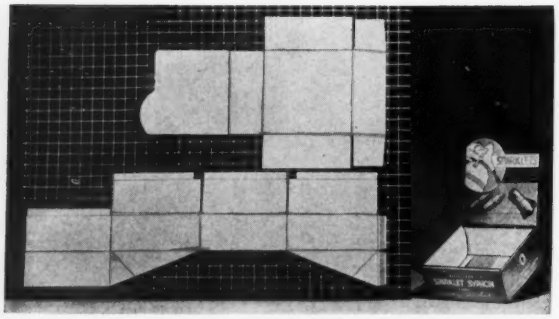
XUM


Amulet
by
Kenny Dunhill
LONDON
Revlon
CREAM
NAIL
ENAMEL
JUELIONE-3
KARL VOSS CORPORATION
HOBOKEN
Division of Shoup-Owens, Inc.
NEW JERSEY
KVC



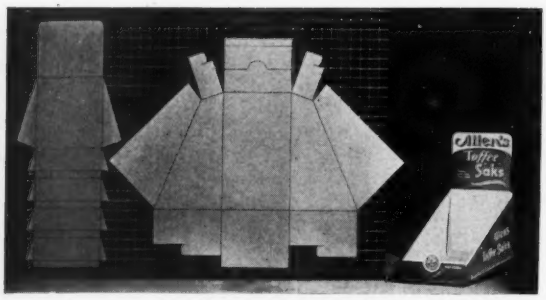
45

45. TWO-STEP DISPLAY CONTAINER. Patented display which shows products in two steps or tiers. Made in one piece, shipped flat. Easily set up by pushing down on two upright pieces which are scored to form the steps. Requires protective sleeve for shipping filled with merchandise. A simple, attractive display unit of sturdy construction and good counter stability.



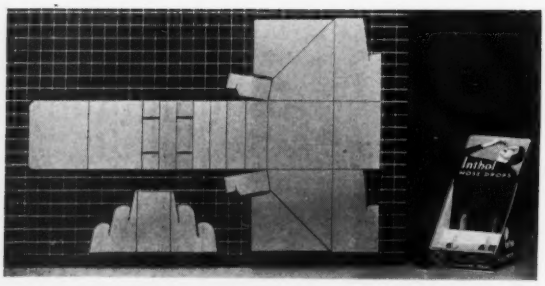
46

46. SIMPLEX DISPLAY CONTAINER. A special easel permits tilting this container at different angles, for effective display. Requires printing and coating one side only. Protective sleeve necessary for shipping. Principal feature is the simplicity with which the dealer may display the goods at an angle. Display panel is equipped with supporting flap which enables advantageous showing of the advertising message.



47

47. RHOMBOID DISPLAY CONTAINER. An effective new type of display container in which the individual packages are displayed in a staggered manner. Particularly useful for fragile items packed in glassine or transparent cellulose bags. Keeps packages in neat position while on display. This is a patented type of display container construction.



48

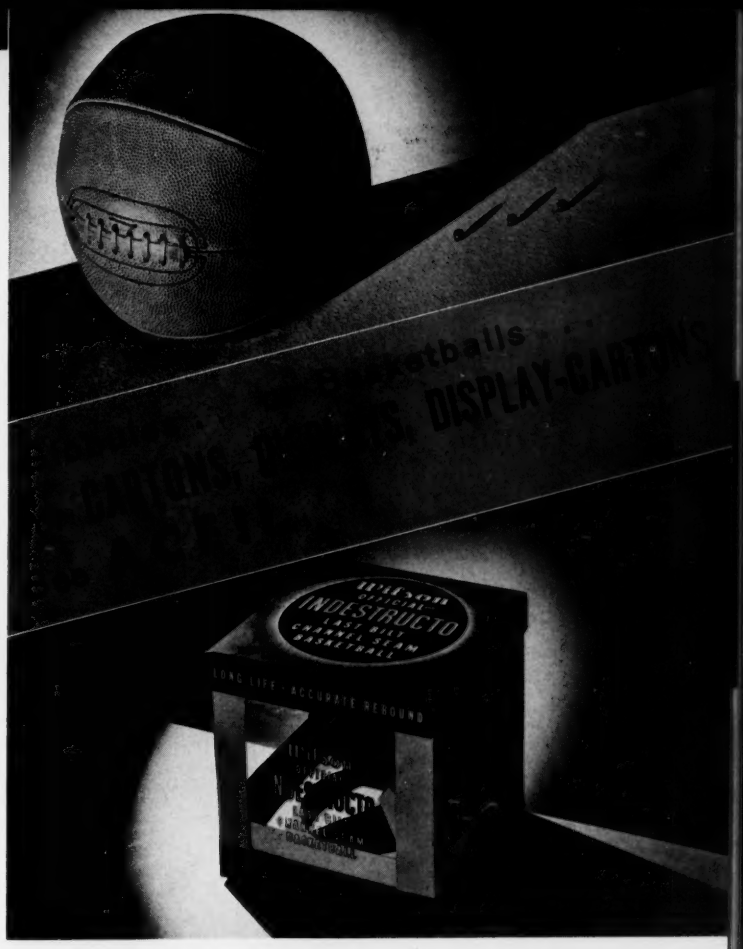
48. RHOMBOID TIER DISPLAY CONTAINER. A novel development, combining the stepped and tilted back arrangements. Well adapted for display of small articles. Provided with inner packing and protective cover to ship in set-up form. Note the interior dividers which prevent lateral movement of the products on display. A patented variation of the Rhomboid type of display container.

XUM

Whether you make globules or basketballs . . . pharmaceuticals or sporting goods . . . whether you need cartons, displays or display-containers . . . IF FOLDING BOXBOARD CAN DO YOUR JOB—see ACE!

See ACE because we have proven ourselves master package-makers. ACE cartons take leading products in every industry to market. ACE cartons make friends for and sell scores of products new on the market. ACE has developed *new types of packages* that meet the needs of manufacturers stymied by difficulties in packaging and display.

See ACE—simply because we can do most for you . . . can bring you more for your package-dollar.





A NEW WAY OF SELLING BASKETBALLS—Greater display...greater attention for Wilson basketballs when displayed in this ingenious ACE package. Dramatizes the pigskin...exhibits the stitching...and sells!

SCORES OF FEATURES in these ACE packages for the vitamin capsules of International Vitamin Corp., Upjohn Company, McKesson & Robbins, Inc., Frederick Stearns & Co. The transparent window that brings the product to attention...the slide drawer that makes it easy to reach ...the lift-flap that protects each layer...and the exclusive ACE nest that keeps each capsule sanitary and whole!



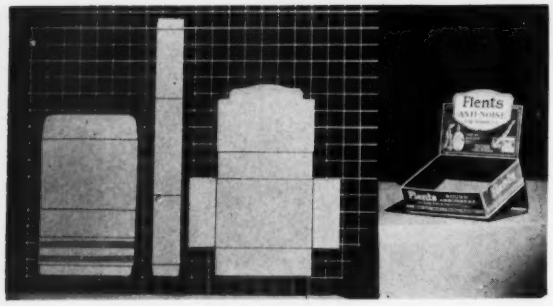
UPJOHN TO THE FORE!

This sturdy, one-piece display gets long-time display wherever it goes. This unit is delivered completely assembled with cartons attached, in a corrugated folded carton. ACE makes many other types of displays, all unique in their individual construction, that will materially assist you in your merchandising program. The individuality of ACE displays will give your products a helpful lift.

ACE CARTON CORPORATION

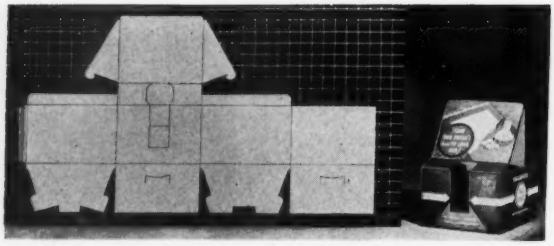
2542 SOUTH 50TH AVENUE, CICERO, ILLINOIS

XUM



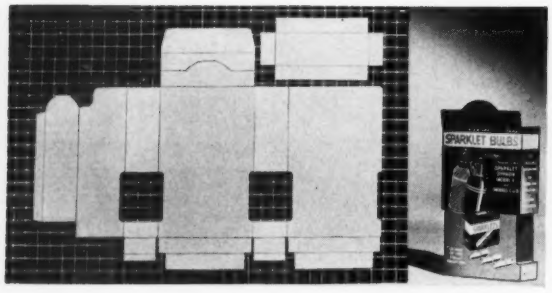
49

49. THREE-PIECE TINSLEY COUNTER DISPLAY CONTAINER. A box of patented design, so contrived that the cover, folding under, proves an easel support, to display the goods. A remarkably successful type of display box because of its simplicity of construction, its ease in setting up, and because it has sufficient strength to act as a combination carrying and display box. It is susceptible to fine printing, required on one side only. The display panel is held at the proper angle by a supporting flap. Much of the universal success of this box is due to the fact that it is easily converted from a carrier to a display container by the retailer.



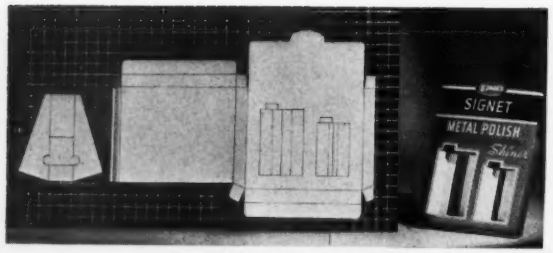
50

50. COUNTER DISPLAY DISPENSER. A novel container in which the display panel, customarily placed at the back, is placed somewhat forward, so that only a few of the articles are displayed, the greater number being behind the display panel, from which position they are dispensed. Avoids disorderly appearance of partly filled displays after a few units are sold. This device is, of course, unsuitable where mass display is the desired merchandising method.



51

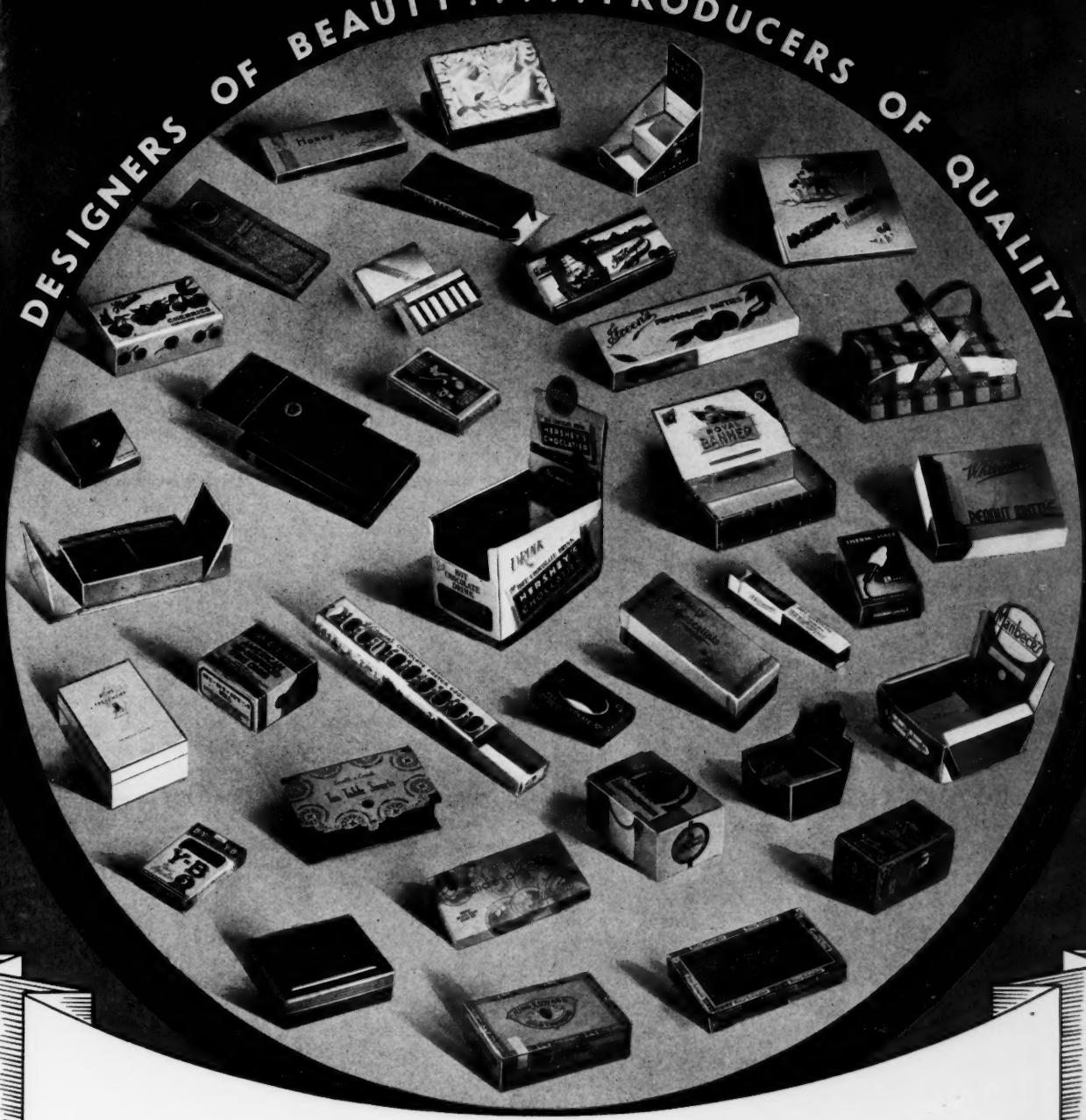
51. CENTER-DIVIDER DISPLAY DISPENSER. A straight tuck-end carton with center divider forming two compartments. Readily filled, products falling into position with removal of bottom one. Stands erect on counter or may be hung on wall. Center divider construction a patented feature. Important considerations in planning dispensers of this type are: (a) provision of ample withdrawal opening and (b) provision against "jamming" of product in reservoir tower. Both are easily provided for with a bit of foresight.



52

52. MULTIPLE-PRODUCT DISPLAY CONTAINER. Effectively displays a variety of different sized products. Construction uses a reverse tuck-end carton, with extended display panel, and a separate reinforced inner platform. Products rest securely on double platforms. Fitted with easel back so display sets at an angle. Die-cuts which serve as product receptacles are, of course, varied in size and shape to meet the particular needs of each display used.

XUM



HAND AND MACHINE-MADE BOXES
SET-UP · BRIGHTWOOD · FOLDING
CIGAR · SILHOUETTE · INSET · VELOUR PRINT
LITHOGRAPHY · MUSICAL BLOCKS · NOVELTIES

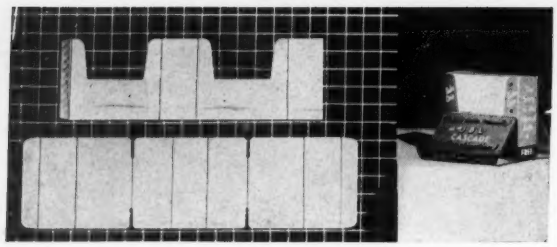
all these and hundreds of other equally sales-compelling paper boxes are the creations of

LEBANON PAPER BOX COMPANY

LEBANON PENNSYLVANIA

New York Office, 51 Madison Ave. New York Warehouse, Jersey City, N. J.

XUM



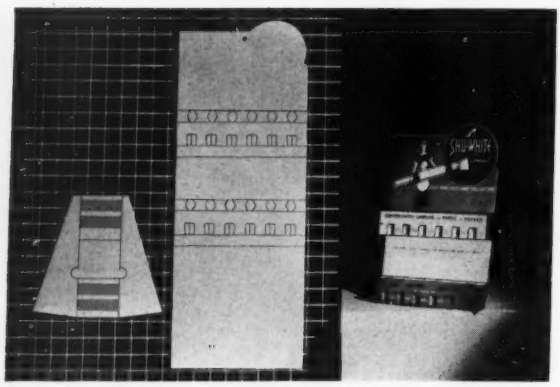
53

53. FREE PAMPHLET DISPENSER. This construction is easily set up on the dealer's counter ready to serve as a dispenser of pamphlets, advertising media or similar material. Its two-piece construction, simple and unique, is extremely inexpensive and provides an economical means of shipping and distributing free literature. Note that the unit "faces both ways"—permitting use on island counters.



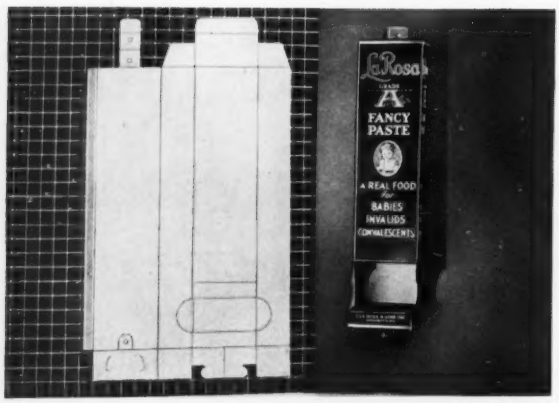
54

54. MULTIPLE UNIT DISPLAY CARD. This economical display card holds twelve tubes suspended from die-cut taps. Six units are on display with a reserve stock of six tubes on the back panel. The design repeats so that display can be reversed when front half of goods is sold. This card requires no separate easel but can be folded to ship flat.



55

55. MULTIPLE UNIT DISPLAY CARD. This card holds twelve individual units, each in its own compartment. It can be used as a counter or wall hang-up card. A separate attached easel is required when used as a counter card. For shipping, this unit requires special interior packing. Almost innumerable variations of this general type are possible, to meet special requirements of the products to be displayed.



56

56. HANGER DISPENSER. This high, narrow dispenser holds a single row of packages, piled one on top of another, with an opening at the bottom through which they are easily withdrawn. Occupies minimum space on crowded drug store counters or may be hung on the wall or other available space. Note top and bottom hanger tabs, provided as an integral portion of the display carton blank.

XUM

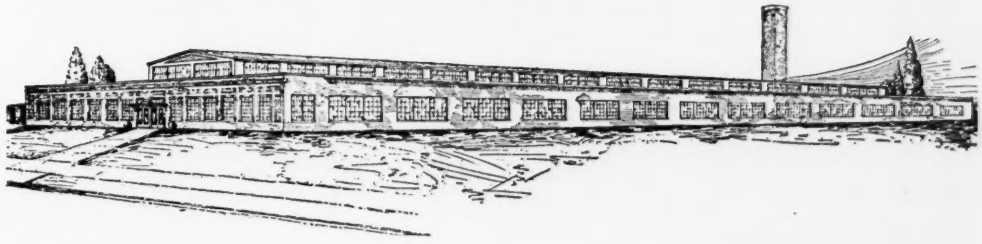
Craftsmanship

that is unexcelled in

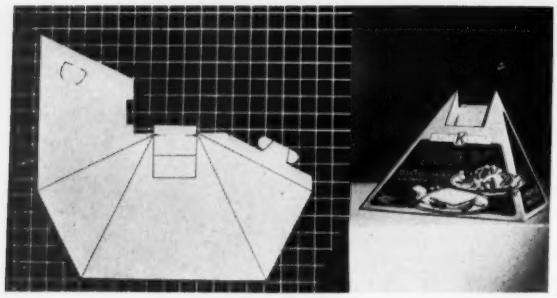
paper boxes and

paper specialties

FERDINAND BUEDINGEN CO., INC.

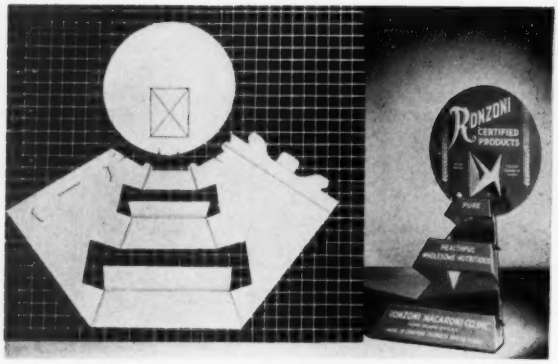


ROCHESTER **NEW YORK**



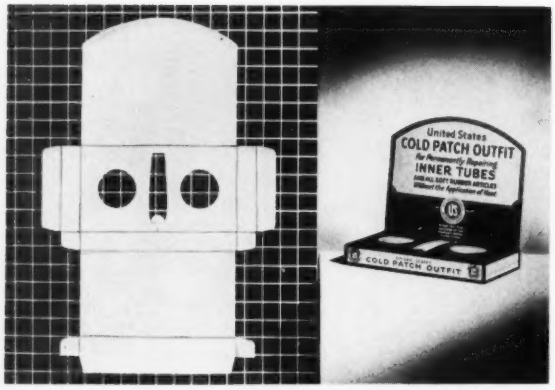
57

57. ONE PACKAGE DISPLAY STAND. A popular, effective and highly economical method of getting one package displayed on the counter. May be made to fit in corrugated container with products so dealer cannot overlook it. Cut-out on panel can be made to hold various shaped products. Although this unit ships flat and, hence, requires minimum shipping space, its erection is so simple that a relatively high proportion of displays can be expected to find their positions on desirable counters.



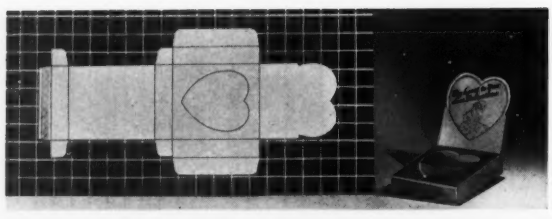
58

58. TWO-PIECE DISPLAY STAND with separate card. Similar to No. 57 except that it is made to display a number of products in a family group. By the novel structure, the necessity of hand-applied easels is eliminated. Slightly more complex in form than the type shown above. Note the use of triple locks to achieve necessary strength.



59

59. FIVE-PANEL COUNTER DISPLAY CONTAINER. This style has replaced the old type of five-panel carton which requires printing two sides and coating two sides, primarily used for introduction and sampling of new products. To set up this display, it is only necessary to insert the end tucks. Note that the four lower panels (in diagram) form a carton in themselves, the fifth panel, or tail, forming the display background.



60

60. FIVE-PANEL COUNTER DISPLAY. Same general style as No. 59 except that it has been made to serve as a display shipper and carry-home unit. As a carry-unit the display panel folds down over the die-cut carton face to provide an effective closure. If desired, this panel could be so designed as to incorporate locking tabs for added strength.





ESMOND BLANKET BOX
Gold Award Winner
esigned and produced by
ATIONAL FOLDING BOX COMPANY

Ability to Design - plus Experience and Facilities to Produce

Years of experience, serving hundreds of internationally famous manufacturers, qualify NATIONAL to formulate basic rules, which sound business judgment dictates must be considered in the development of truly successful and profitable packages.

Characteristic of the thoroughness of NATIONAL'S methods is the "Critical Analysis." In this preliminary report, trained package merchandisers study the product, the market, the distribution plan, and competition, that they may set up, in the form of a "word blueprint," the several requirements of the complete package.

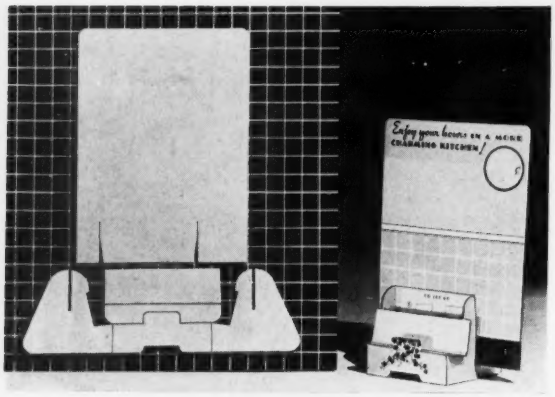
And, having taken such care in getting the package well planned, it is reasonable that NATIONAL follows through every succeeding production operation, from making the boxboard to the final inspection of the printed or lithographed carton, with equal care and skill. Inquiries are invited from responsible manufacturers who place package quality above price.

NATIONAL FOLDING BOX COMPANY
NEW HAVEN, CONN.

BOSTON
665 ATLANTIC AVENUE

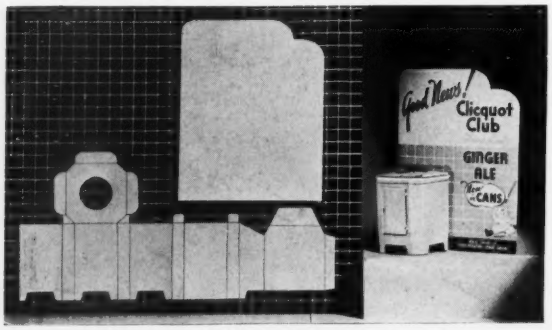
NEW YORK
CHRYSLER BUILDING

PHILADELPHIA
1201 CHESTNUT STREET



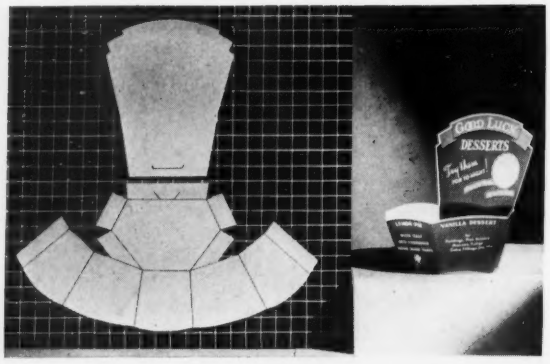
61

61. INDIVIDUAL DISPLAY STAND AND CARD. An inexpensive, effective, two-piece unit which raises the product above the level of the counter and gives close tie-up with the advertising method. By interlocking the stand portion with the display card, a rigid easel support has been formed to hold the product and card in an upright position. Some users design the card so that it may be re-used by the dealer as a unit by itself after the display has served its function.



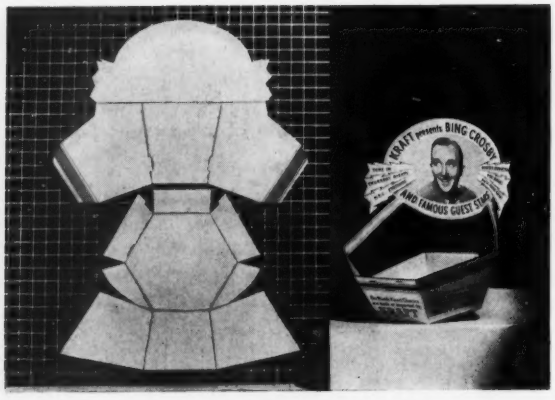
62

62. PLATFORM STAND AND CARD. Designed to project into consumer consciousness the original offering of ginger ale in cans. The actual can, in place on the refrigerator in the assembled unit, covers the empty space below "Good News!" and provides, in the manner shown in the illustration, a focal point for copy concentration. Considerations of economy dictated the simplest possible structure (commensurate with three dimensional effect). Innumerable variations of this platform type of design are, of course, possible.



63

63. BASKET DISPLAY CONTAINER. A container designed primarily for aisle table and counter display of small packages of quick-sale type, such as gelatine desserts. Does not serve as shipper but is easy to set up, displaying goods in studied disorder, thus encouraging self-service without disturbing unity of display. An extremely effective type of mass display widely used in the drug and grocery fields.



64

64. BASKET DISPLAY CONTAINER. Similar to No. 63 except for general shape of basket portion and display panel. The display panel has been creased so that it can be folded to fit a shipping case. This does not interfere with the rigidity of the panel when on display as the panel is forced into a curved position.

XUM

XUM

XUM



This insert is printed on a sample of a

La Monte Safety Box Board

Made in grades and weights to meet all requirements

Both products made by
GEORGE LA MONTE & SON
Nutley " " " New Jersey
MANUFACTURERS OF SAFETY PAPERS SINCE 1871

This tag is a sample of

La Monte Safety Tag Board



Protect your Packages and Tags against Counterfeiting.

These safety boards are available in various weights and colors with your own trademark design incorporated in the stock itself. Available through your regular box or tag manufacturer.

La Monte Safety Papers are also used for • LABELS • BOX COVERINGS • WRAPPINGS

XUM

*Note the **DIFFUSION** of the individualized safety design on this side. The diffused design appears on the **inside** of the box or on the **back** of the tag and provides an added safeguard against **counterfeiting.***



KWICKLASP

AMERICA'S FINEST MAILING BOX

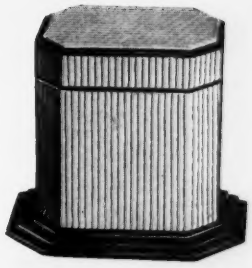
Special board and special construction make **KWICKLASP** outstanding . . . make it the natural choice of hundreds of manufacturers in every field . . . **KWICKLASP** saves on paper and twine . . . saves in mailing labor . . . saves on losses from damage . . . and delivers your product in a way that makes an immediate favorable impression by its appearance and ease of opening and closing.

Over 8 million **KWICKLASP Boxes** were used last year . . . all sizes, all styles. Let us analyze your needs and show you which of our large line is eminently suited to your use. (Or let us design a **KWICKLASP** to meet your particular problems.)

SET-UP PAPER BOXES

Finer Quality and Greater Sales-Appeal

Since 1876



MODERN HIGH SPEED EQUIPMENT

SMALL BOXES
CANDY
MAILING
COSMETICS
WINDOW LIDS

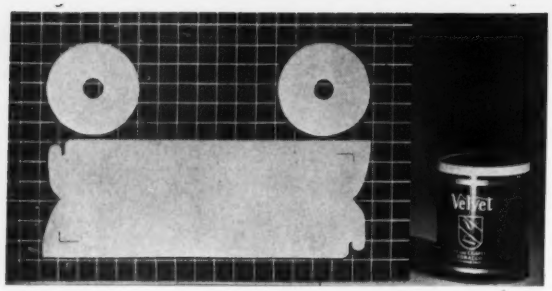
BOXES DESIGNED FOR ALL PURPOSES

W. H. DEISROTH COMPANY, Inc.

Established 1876

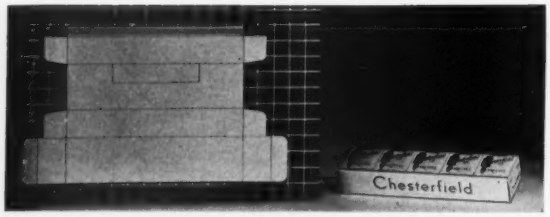
Main Office and Factory
S. E. Cor. Third and Cambria Streets
Philadelphia, Pa.

New York Office
545 Fifth Avenue
New York City



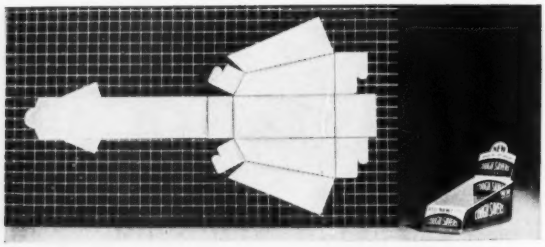
65

65. DUMMY DISPLAY CARTONS. Display units of this nature are widely used by tobacco manufacturers for dealer window displays. Shipped flat and readily set up by dealer, they save tying up salable merchandise in displays and possible spoilage due to exposure to sun and dust. Available for other products. Patented.



66

66. TILTING DUMMY CARTON. A special straight tuck carton with tilting device. Can also be made with display panel if desired. May be made to represent any desired number of dummy packages for display purposes. Excellent for perishable articles, like cheese and butter, ordinarily kept in store refrigerators and out of the consumer's sight. This unit brings the packages out into open display. Dummy display cartons, in a number of variations, are widely used for window display purposes and as display "props" generally. While occasionally made up as standard cartons in either miniature or giant size, they are even more frequently created as reproductions of a row or group of cartons formed as a single unit for convenience in display erection but presenting a multiple unit appearance to consumers.



67

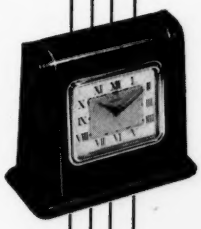
67. RHOMBOID DISPLAY CONTAINER. Another variation of this type. An effective display container in which the individual contents are packed in a staggered manner for better display. Particularly useful for fragile packages put out in glassine bags. Comes to dealer ready to set up and the contents are kept in tidy position while on the display counters. Patented.

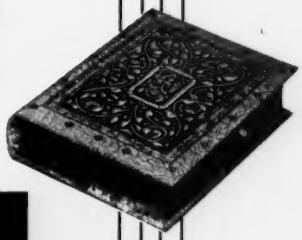
The cartons and displays illustrated on the foregoing pages do not, of course, represent every variation of every available type. They do, however, present a complete picture of the most commonly used types and of the basic varieties of folding cartons, display containers and dispenser type displays.

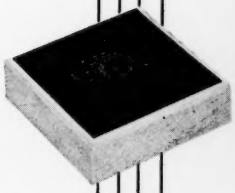
The reader will note reference, in many of the diagram captions, to patented types of displays and cartons. Such patents are sometimes held for the exclusive use of one carton maker. More frequently, however, they are licensed to a smaller or larger group of and carton manufacturers.

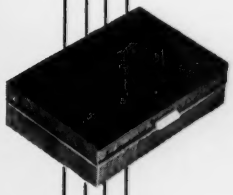
FINE WOOD, LEATHER AND SET-UP PAPER BOXES FOR LUXURIOUS PACKAGING



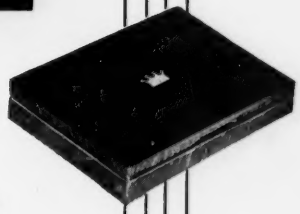


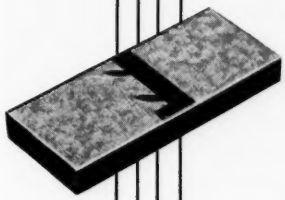














Genuine walnut or mahogany with plush or satin lining can set off your product in a tempting background.

Simulated leather, reproducing antique tooled effects, can place your package in the ultra exclusive class with but slight price premium.

Set-up paper boxes, imprinted in wood grains, now simulate hardwoods with amazing fidelity. This is eye appeal at low cost.

Whatever the selling range of your product, SCHUNACK creations can enrich its sales appeal with genuine or imitation wood, fabric, leather and paper settings.

We can advise you impartially because we manufacture in all materials, not just one or two specialties.

Unusual designing, freshly created ideas are our specialty. SCHUNACK-made boxes and displays have resulted in historic sales effectiveness.

May we submit ideas and costs on your product? Write us now.

C. E. SCHUNACK, INC.

Meriden **Conn.**

XUM

PARAFFINED CARTONS

Waxed or paraffined cartons were developed to fill a definite need, which had five peculiar characteristics:

1. Maintaining and protecting a moist, perishable product within the walls of its own original package.

2. Protection against the penetration of moisture, from the outside, through the walls of the original package (as in iced refrigerators).

3. Maintenance of the original sweetness and purity of a manufactured product against contamination by outside foreign odors.

4. A practical package for perishable and greasy products, fitting in with manufacturing operations, shipping, retail store handling, storing, sale and display, and convenience to the ultimate consumer.



1. Paraffined cartons. Courtesy The Butler Paper Products Co.

2. Paraffined butter cartons. Courtesy The Menasha Products Co.



5. Economy in labor, container, shipping and manufacturing costs, so that perishable and costly products may be swiftly, economically and attractively marketed to the general public.

While, with the development of the packaging art, new products are being constantly developed, the major ones especially adapted to be packaged in paraffined cartons are: Butter, oleomargarine, ice cream and sherbets, lard, vegetable shortening, smoked meats—such as bacon, sausage, etc.—and salted nut meats.

The product to be packaged will determine the style, size, stock and other characteristics of the particular paraffined carton. In general, there are three major classifications, as follows:

1. **Butter cartons:** The paraffined carton is the most practical method for packaging butter in prints, whether one-lb. solid, halves, or quarters. The carton combines protection of contents, ease of handling, sanitation, identification, and general attractiveness. Butter cartons are made in these principal shapes:

   One-lb. Elgin—This is the most popular shape and is used for packaging a one-lb. solid brick of butter, two halves, or four quarters, the butter being wrapped in parchment paper before it is inserted in the carton. This carton may be had in the upright style or with the design running horizontally.

   One-lb. Eastern Flat—A new style flat carton nearly square in shape with excellent display value on the front and back panels. Used for packaging four quarter-lbs. or two half-lbs.

   One-lb. Double Length—A new long carton, distinctive in appearance, for packaging four quarter-lbs. or two half-lbs. end-to-end. Convenient to handle and ideal for display. A new and interesting development in this package is the perforated Double Length carton, having a perforation right in the center which permits the carton to be broken and dispense one-half pound at a time. A portion of the carton on each half-pound gives rigid protection to the butter and carries the advertising with it.

   One-lb. Western Flat—For packaging one-lb. solid, two halves, or four quarter lbs. of a different shape than used in the three cartons above. Requires different butter-printing equipment. Used chiefly by the West Coast trade.

   Smaller-sized Butter Cartons—There is a limited demand for smaller cartons for packaging the following weights: quarter-lb., half-lb., and twelve ounces.



● *The "flats", ready-cut to size, scored for folding and, if desired, printed in one or more colors . . .*



● *Go to the Stayer, where corners are joined and reinforced with metal stay of matching or contrasting color . . .*



● *And your "strongest paper boxes" are ready. A wide range of styles and sizes can be assembled on the Stayer.*

METAL EDGE PACKAGING IS *Simplicity* ITSELF!



Far from complicating your packaging, adoption of the Metal Edge *method* would simplify it. Keep everything "under control".

Hundreds of concerns—comparatively small ones as well as the giants—in 77 different industries use Metal Edge packaging. With many, its production of stronger, better-looking and better-selling boxes is the main consideration. But others candidly admit that the way the packaging method fits into their business—showing them advantages and economies in various directions—is what won them.

You are invited to look into Metal Edge packaging for *your* product. You may even wish to take advantage of our Free Trial offer, available to selected firms in the United States. Let's talk it over.

NATIONAL METAL EDGE BOX CO.

330 NORTH 12th STREET PHILADELPHIA

Strongest Paper Box

XUM

All shapes and sizes are available either in the wrap style or glued style. Wrap-style cartons may be packed by hand or by automatic cartoning-machine. The glued-style carton is for hand packaging. All styles are available in a number of standard sizes, the sizes required being determined by three factors: (1) The type of butter printer. (2) The character of the butter. (3) Whether butter is single parchment wrapped or double parchment wrapped.

2. **Ice Cream Cartons:** Cartons offer the ice cream manufacturer a clean, convenient, attractive, practical, and economical method of packaging his ice creams, sherbets, ices, spumoni, etc., *at the factory* in consuming units, either pints or quarts. The four major styles of ice cream cartons are:

TUCK-END STYLE—Available in standard brick, Philadelphia, and Mojonnier sizes. The standard brick is for packaging ice cream that has been poured from the freezer in liquid form into metal containers or forms, hardened and cut (one large piece to the package) then wrapped in parchment paper. The Mojonnier size and the Philadelphia size are used for liquid fill from a filling machine and also require a parchment-paper liner which is set up with the carton before filling.

TRUNK STYLE—$2\frac{3}{4}$ in. high by $3\frac{1}{2}$ in. wide by $6\frac{1}{2}$ in. long, quart size. $3\frac{1}{4}$ in. high by $2\frac{3}{4}$ in. wide by $3\frac{1}{2}$ in. long, pint size.

The quart size is the most popular one for brick ice cream. The ice cream is poured from the freezers in liquid form into metal containers or forms, hardened, sliced (six, eight or ten pieces to the quart), the slices then individually wrapped in parchment paper and inserted by hand into the Trunk Style carton.

LINERLESS STYLE—No. 1. Size for pints $2\frac{11}{16}$ in. high by $3\frac{1}{2}$ in wide by $3\frac{1}{8}$ in. long. Quart size: $2\frac{11}{16}$ in. high by $3\frac{1}{2}$ in. wide by $6\frac{3}{16}$ in. long.

No. 2. Size for pint: $2\frac{13}{32}$ in high by $3\frac{5}{32}$ in. wide by $3\frac{27}{32}$ in. long. Quart size: $2\frac{13}{32}$ in. high by $3\frac{5}{32}$ in. wide by $7\frac{21}{32}$ in. long.

As the name implies, this style requires no inner parchment paper liner, due to the fact that it is made of solid-bleached sulphite board. In regular use, these cartons are closed on one end, the ice cream is then poured into them, in semi-solid form, after which the open end is closed, and they are placed in the freezing-room for hardening.

REFRIGERATOR STYLE—$1\frac{17}{32}$ in. high by $3\frac{1}{2}$ in. wide by $5\frac{1}{2}$ in. long, pint. This is a linerless-style carton especially adapted to fit into one of the ice-cube trays in an electric refrigerator in the home, keeping the ice cream in perfect condition until time to serve. Has enjoyed wide popularity during past few years, as it permits the consumer to keep ice cream for fairly long periods at home, without danger of its softening and becoming unusable.

3. **Lard and shortening cartons:** Packaging shortenings in cartons, rather than in tin pails, offers many economies and production advantages, and is consequently gaining in popularity. The most popular shortening carton is the Peters style, so named because it is automatically set up on a Peters machine. This carton has lock-ends which are locked on a special machine which assembles the carton and inserts a parchment-paper liner for filling. Made in five sizes: 1-, 2-, 3-, 4-, and 8-lb. The top



3. Ice cream cartons. Courtesy The Menasha Products Co.


BOXES AND DISPLAYS
of Rare, Rich Grains
and Smart Design
MADE BY CRAFTSMEN
Whose Skill is Known
Wherever Fine Woods Are Used!
For decades, Wilder Mfg. Co., and its master woodworkers,
have served leading users of cabinetwork everywhere.
And now this tradition of skill and craftsmanship is brought
to you in the handsome boxes and displays which we are pro-
ducing for major package-users in many fields.
Wilder creations—fine pieces of furniture themselves—stop
passing eyes . . . draw interested inspection . . . and sell!
Let us create for you a package of true distinction and
consummate sales-appeal.
WILDER MANUFACTURING CO.
Leominster
Mass

XUM

of this Peters-style carton opens like a Trunk-style ice cream carton, facilitating its closing after filling, and giving ready access to contents by the consumer.

In their manufacture, the cartons are first printed and died-out, after which they pass through a bath of hot paraffine, followed quickly by immersion in frigid water, which "sets" or hardens the paraffine coating, and gives a high gloss. All cartons which are to be paraffined are made of either single or double bleached sulphite (either solid or manila liner), which is the only type of folding boxboard which retains its whiteness, when coated with hot paraffine. Standard weights: .016 point for 1/4-, 1/2-, and 1-lb. cartons; .018 point for 2- and 3-lb. shortening and pint and quart ice cream cartons; .020 point for 4-lb. cartons, and .032 or .040 point for 8-lb. cartons.

4. **Frosted food cartons:** Although paraffined cartons are used to a very great extent in the frozen food industry, that industry as a whole is still in its infancy and standardization has not yet taken place

Most frosted food cartons are made of bleached sulphite lined groundwood which is well adapted to paraffined treatment without discoloration. Current experiments indicate that it is possible, at a future date, that a somewhat less expensive grain of board may prove usable for quick freezing cartons. Paraffined cartons are utilized because of their water repellency which prevents weakening of the carton stock when condensation occurs. For this reason, it is important that the coating or waxing be more flexible than in ordinary paraffined boards since, in the latter case, the coating has a decided tendency to crack or become brittle under low temperatures.

It has been conservatively estimated that products valued at around one-half billion dollars find their way from point of manufacture to retail stores, every year, packaged in paraffined cartons.

METAL EDGE BOXES

by M. P. JUNKIN*

Metal edge boxes combine a number of the advantages of folding cartons with other advantages inherent to set-up paper boxes. They are, essentially, die-cut blanks, shipped in the flat and erected with metal-stayed corners in the plant of the box user.

Blanks are delivered to the user die-cut and scored for folding and printed in one or more colors. As finished boxes are required, the flats are taken from stock to the staying machine where the box corners are joined with a metal stay. In some instances, the staying machine or machines are located alongside assembly and packing tables, thus making the whole packaging procedure a part of the production line. Other firms maintain separate assembling departments in which boxes of a number of types and sizes are assembled for day-to-day and hour-to-hour needs.

* Sales Manager, National Metal Edge Box Co.

A few of the many types of metal edge boxes, dispensers and displays.



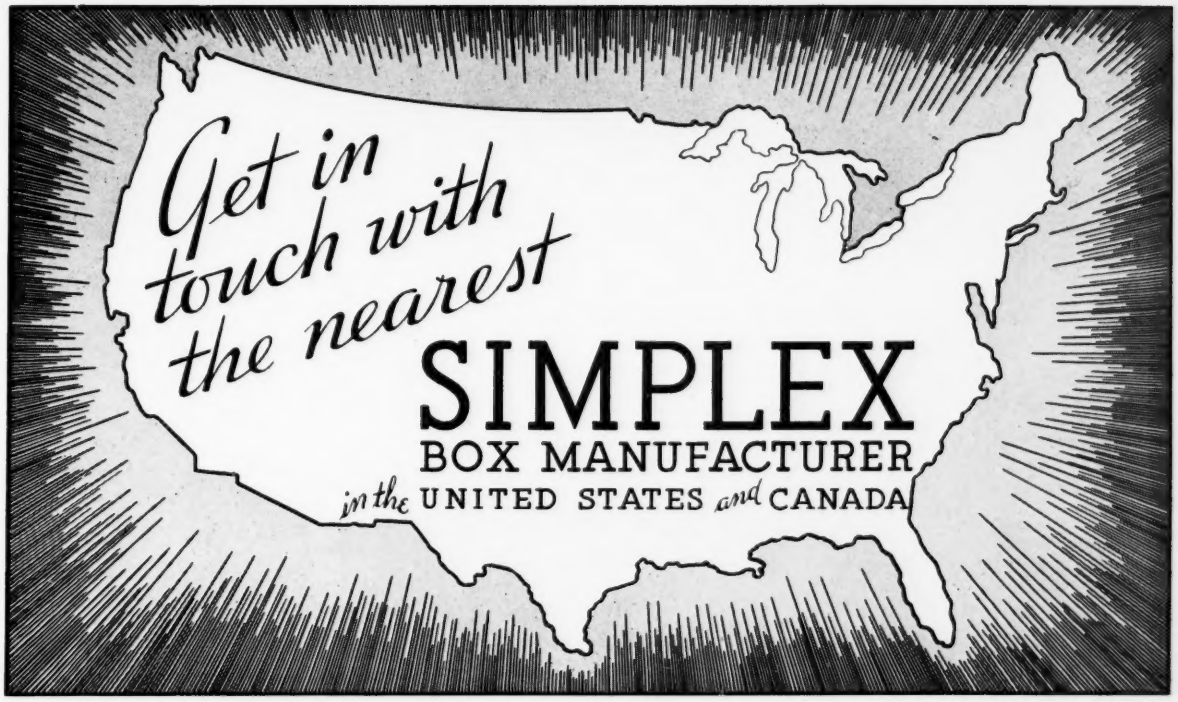
Boards used in metal-edged boxes are available in a number of colors, weights and finishes. Practically every type of decoration may be utilized. Stay material is available in a number of widths and in colors to harmonize or contrast with the board.

Stay metal is delivered in reels and automatically cut to the required length by the staying machine.

Among the advantages claimed for metal edge boxes is a very substantial reduction in space required for storage (when the alternative type of container is of set-up or pre-formed construction). Production of boxes is more directly related to other factory production schedules and thus the box user is free from some of the hazards involved in a reliance upon outside sources, provided that an adequate stock of blanks is maintained.

An almost infinite variety of constructions and types of metal edge boxes is possible. Most common are the one-piece, tuck lid type and the two-piece telescoping type. Metal edge boxes are very frequently used as sample mailers and as mailers for small and fragile articles, where the metal stay provides a high degree of rigidity to resist shipping shocks.

SIMPLEX COVERS THE NATION •



AUTHORIZED MANUFACTURERS ARE PROVIDING A NATION-WIDE SERVICE FOR YOUR CONVENIENCE

New Haven Pulp & Board Co.	New Haven, Conn.
Russell Box Co.	Medford, Mass.
Robert Gair Company, Inc.	New York, N. Y.
Blum Folding Paper Box Co.	Brooklyn, N. Y.
Simplex Paper Box Corporation	Lancaster, Pa.
Old Dominion Box Co.	Lynchburg, Va. Charlotte, N. C.
Paper Package Co.	Indianapolis, Ind.
Imperial Box Co.	Chicago, Ill.
Gereke-Allen Carton Co.	St. Louis, Mo.
Ahdawagam Paper Products Co.	Wisconsin Rapids, Wis.
Fibreboard Products, Inc.	San Francisco, Calif. Portland, Ore. Los Angeles, Calif.
Gair Company Canada, Ltd.	Toronto, Canada

WHATEVER YOUR PRODUCT . . . whatever your problems, a suitable one or two piece SIMPLEX box is made to meet your requirements. That is why leading firms in the textile, toy, food, and almost every other industry choose — above all others — SIMPLEX BOXES.

SIMPLEX PAPER BOX CORPORATION

LANCASTER PENNSYLVANIA

Trade Mark
Made Under License In All Parts Of The U. S. A. And Canada

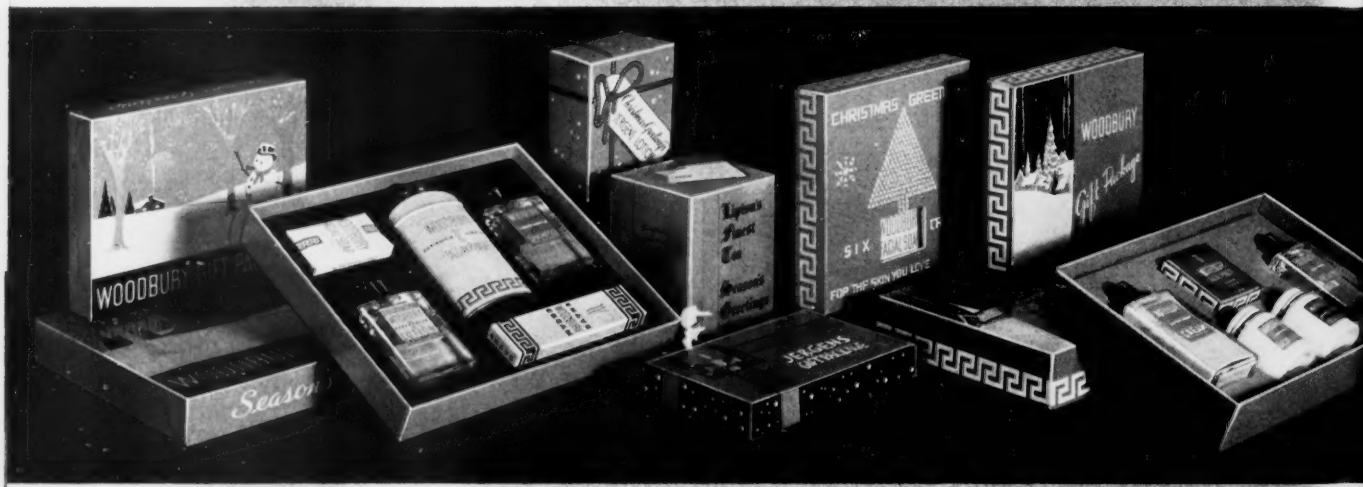
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DRUG AND COSMETICS



FOOD PACKAGES



HOLIDAY PACKAGES

R-T-G packages are varied and extensive. We make containers and displays for almost every type of product. Each one represents a study based on sound merchandising and engineering principles plus quality controlled production.

THE RICHARDSON- T

4501 WEST MITCHELL AVENUE ★ ★ ★

NEW YORK BALTIMORE DETR

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MOISTURE-PROOF PACKAGES



PARAFFIN CARTONS



DISPLAYS

The skill and facilities of our well balanced packaging organization offers you expert counsel. This background has enabled R-T-G packaging to be among the leaders in the successful merchandising of many high grade products.

TAYLOR-GLOBE CORP.

★ ★ CINCINNATI ★ ★ OHIO

DETROIT CHICAGO

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SET-UP PAPER BOXES

by WILLIAM H. PERRY*

The term "set-up," when applied to a box, means that it is a completely finished box—produced and delivered in three-dimensional form—when it leaves the plant of the paper box manufacturer. It is ready to be packed with merchandise and is ready for warehousing or shipment immediately after being packed. It is manufactured from materials peculiarly produced for use in its construction. Basically, it is made from boxboard which is rigid in form, so that the completed box, when covered with one of the myriad of specially designed wraps, creates the illusion of permanence.

When the set-up box is delivered by the box manufacturer to the packager, no further processing is required. This is an important factor because it means the saving of time, and permits rapidity of handling by the packager with consequent savings of cost.

Descriptions and Terminology

(The terms used in the following description are the standard terminology as developed by the National Paper Box Manufacturers Assn.)

In the vast majority of cases the commodities for which set-up paper boxes are constructed are longer and wider than their depth. Automatic set-up paper-box machinery has, therefore, been constructed for volume production based upon these factors.

In standard practice, all measurements are given in the following order: (1) length, (2) width, and (3) depth of the box.

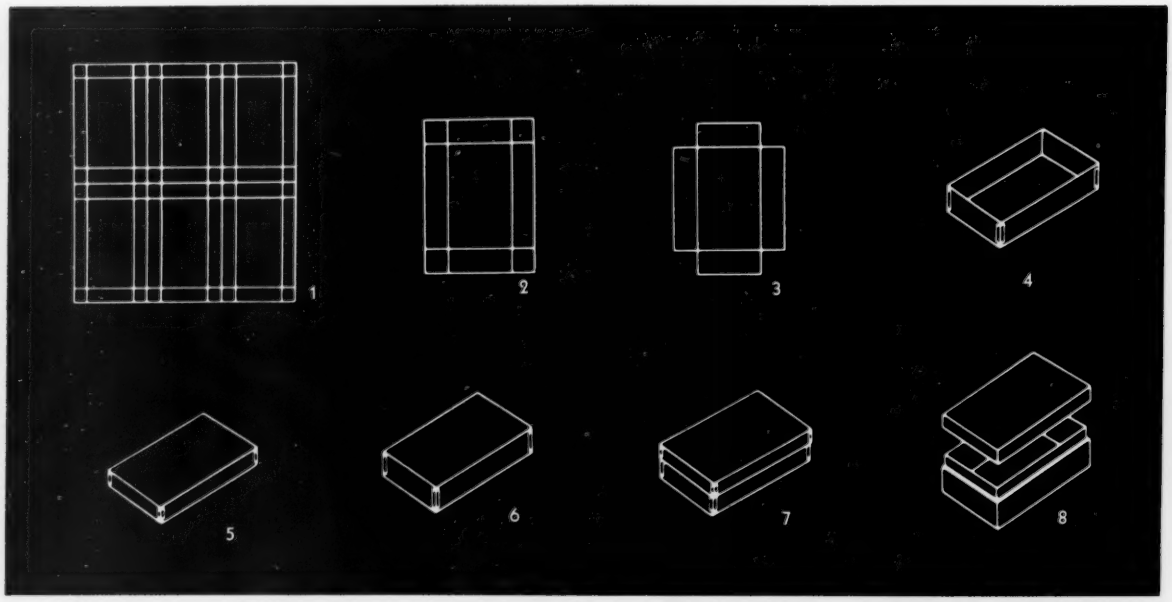
These three measurements are generally considered as inside base dimensions, and set-up boxes are always built from them. The lid-depth measurement comes next, its length and width being determined by the thickness of board used in the base and by the fit desired, whether tight, medium, or loose.

From this elementary form, a great variety of set-up box shapes can be made, suggestions of which are illustrated and described in the following:

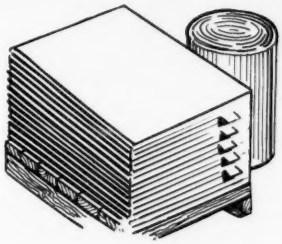
Basic Construction

(1) A sheet of *boxboard* is first *scored* to the size specified.
(2) The *scored sheet* is then *broken* into individual *box blanks*.
(3) These are *corner cut*.
(4) Next, they are *turned down* and *corner stayed*.
(5) The *lid* is processed similarly.
(6) Together they form the simplest type of *set-up paper box*, known as a "skeleton" box or "rough carton" with *shallow lid*.
(7) Next comes the *full telescope* lid by simply increasing its depth to that of the *base*.
(8) For greater strength, ease in opening, or smarter appearance, comes the *shoulder style* by adding an extra base or by inserting board scored to form an inner *shoulder* or *neck*.

* President, Cambridge Paper Box Co.

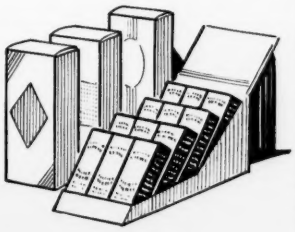






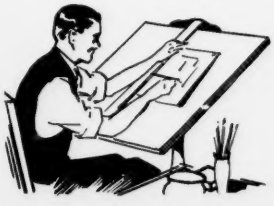
BOXBOARD CONTROL

Supervision of ACM cartons is complete, because ACM produces its own boxboard. While specializing in clay coated, ACM also makes greaseproof, moistureproof, counterfeit-proof and all ordinary grades of boxboard.



FOLDING CARTONS AND DISPLAYS

For five consecutive years ACM cartons have won awards in package competitions. The ACM line of display containers is one of the most complete in existence. Patented mailing cartons, dispensers, and bottle carriers are but a few of our many specialties.



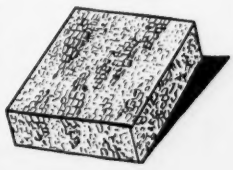
DESIGN SERVICE

ACM's package construction men and artists represent a combination of merchandising ingenuity and years of practical experience. They are at the complete disposal of our customers.



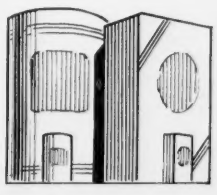
SILK SCREEN SERVICE

For inexpensively testing new products, ACM produces small quantities of cartons or displays without the necessity of engravings. Even more important to national advertisers is our complete production and mailing service of heavy display material direct to retail outlets.



CORRUGATED FACILITIES

In addition to producing a complete line of shipping cases, ACM laminates colored embossed clay coated to corrugated for making beautiful displays, gift boxes, and show window backgrounds.



JUMBO CARTONS

Giant replicas of your package. A.C.M. executes them on clay coated board in brilliant colors to exactly match your package. Even though your package may be of unusual shape or construction we can in all probability develop a jumbo replica for you.

THERE ARE TWELVE PRACTICAL REASONS WHY YOU SHOULD ALWAYS SPECIFY A.C.M. "CLAY COATED." HOWEVER WE CAN FURNISH BOX BOARD AND CARTONS FROM ANY GRADE YOU SPECIFY



XUM

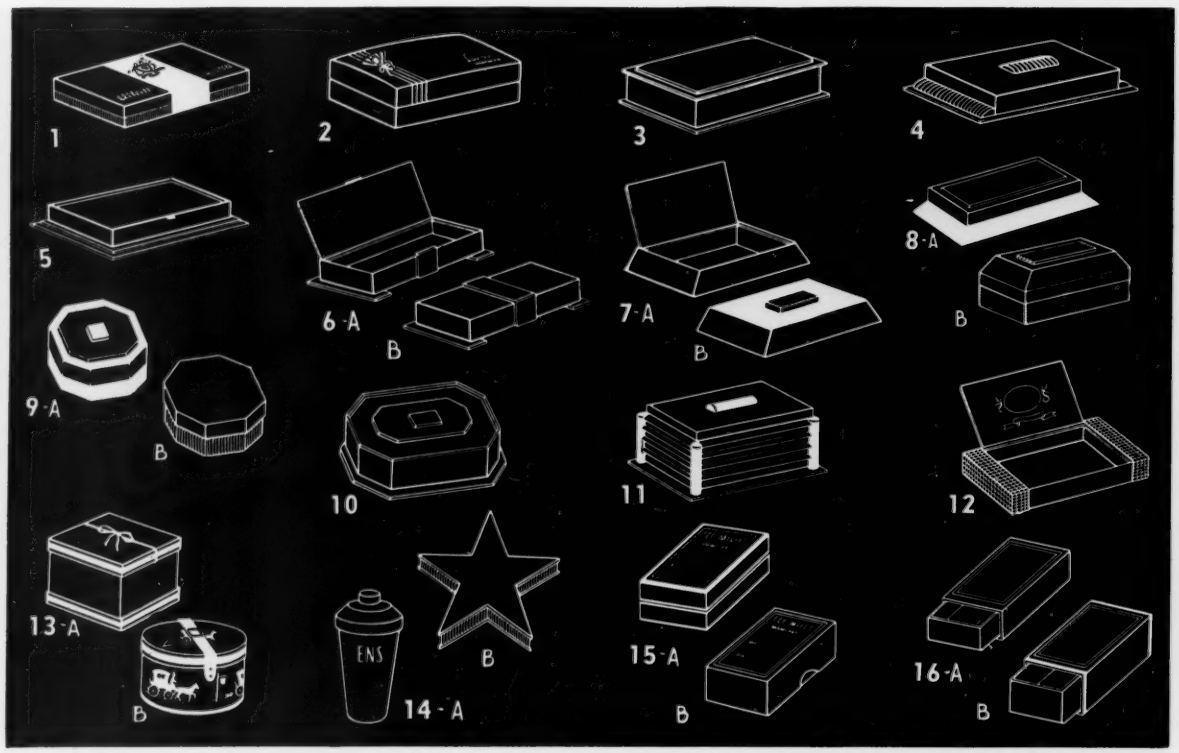
Basic Construction (Special Cases)

Packagers sometimes require set-up paper boxes in depths greater than standard machinery will provide. For such there is special equipment in use which makes for economy in production and materials.

Thus, in a box for commodities such as millinery or bulk candy, *ended*-box construction is used. Here the saving of board more than offsets the increased labor cost of slower production.

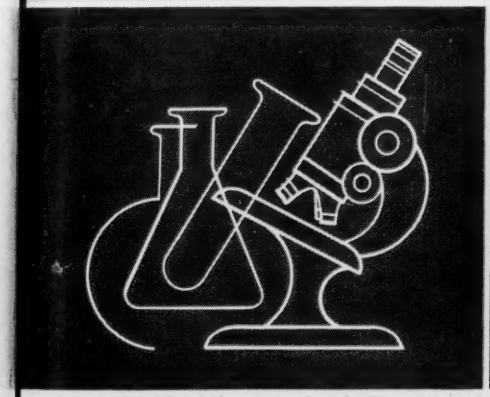
This box may be *rough* but is generally *banded* by carrying the paper around the four sides and *turning*

1. A regular two-piece box, telescope lid, applied design printed in two colors to give shoulder style effect; adaptable to almost any commodity.
2. Shoulder-type box, made of high-quality materials, top domed for added appeal, lid hinged to base; commonly used for packaging high-priced confections and cosmetics.
3. The well-known candy box, extension base and lid; full telescope, base and lid solid wrapped with fancy paper.
4. A flat extension base with regular solid wrapped lid. Lid hinged to base at back flange of cover. Base elongated in length, augmented by quarter-round plastics at ends of base extension and segment of plastic at top center of lid.
5. Base has graduated extensions, with a flat-hinged lid recessed into base onto an inner shoulder. A small lid-pull, generally of ribbon, for ease in opening. A smartly tailored box of high quality with very flexible adaptation.
6. An adaptation of No. 5. The base extension, as well as the panels at the front of base and at the center of the lid, are of heavy board covered with paper. Contrasting color scheme gives a most sophisticated container. Again adaptable to goods where a dash of swank can augment the total effectiveness.
7. A fancy candy-box, although adaptable, of course, to many other products. It has solid wrapped beveled base with flat solid wrapped lid hinged to recessed shoulder. In contrasting colors, with addition of ornamentation of plastics, metal, or paper-covered board, it makes a most appealing presentation. Generally used for holiday packaging.
8. (A) A shallow beveled base with solid wrapped lid, plus flat covered pad with regular shoulder construction. It offers another variation which, when properly styled in contrasting coverings, presents a most interesting container. (B) A regular shoulder style construction with variation of the lid, which is beveled into a straight side flange for closing onto base shoulder. A flat pad is added for effect.
9. (A) An equilateral octagon with outer base larger than shoulder on which the lid sets, giving a streamlined effect, augmented by small top placque of plastic or chromed metal. (B) The same type of octagon simplified into a simple base with shallow lid construction. In varying sizes, it becomes a smart package for face-powder, cosmetics, flowers, confections, and many similar things.
10. The general construction here is similar to No. 5, except the shape is eight-sided; viz., extension base with recessed lid, with series of two flat pads as accessory decoration.
11. Illustrates the tremendous scope of physical design. To a regular shoulder style is added an extra wide and heavy extension base, with fancy covered flutings and covered pillars, and half-round decoration added to the top. Proper treatment creates a very exotic effect.
12. Another adaptation of No. 5. The base is extended in length, with separate trays or parts added to each end; both to conceal the otherwise opened ends.
13. The "band" box style; A being square with an extra tray or base the same dimension as the lid, and glued onto the base to add distinctiveness; B, a round or oval band-box with all-over applied design, a familiar millinery style. Also used by manufacturers of famous brands of men's hats.
14. Mechanical and design ingenuity evolve startling and interesting shapes as A, the cocktail shaker, and B, the star with regular extension base and lid—both formed with dies and general assembly by hand work.
15. A, familiarly known in the drug-box fields as shoulder pill-box if square, or powder-box if oblong in shape. Constructed on special automatic equipment. Four colored edges show, accomplished by the use of two different colors and widths of papers. To the top is applied the prescription label. B is for the same purpose, its construction simplified to regular telescope base and lid, with thumb-holes at sides for ease in opening.
16. A, known as "white slides," produced on high-speed automatic equipment, the box being a tray with lid shell consisting of four sides with open ends. Stocked in standard sizes. Commonly used in the drug field and wherever small boxes are desired. B, known as the "dandy slide," similar in construction but with the edges of the shell left uncovered.

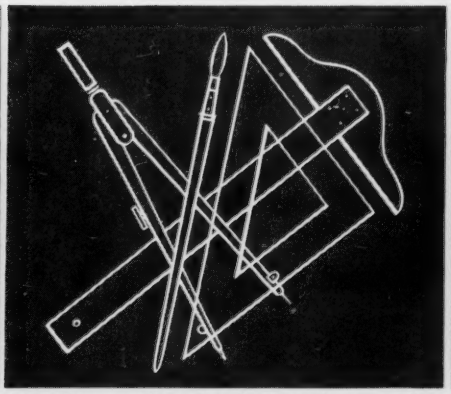


Robert Gair

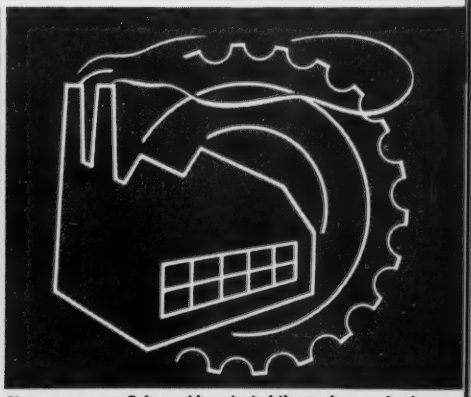
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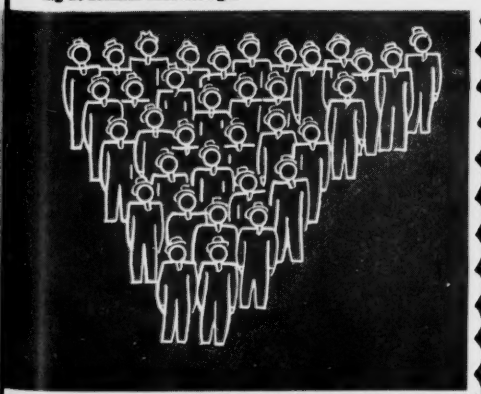
From the Gair laboratories come safe, scientific methods of using paper for modern packaging. In numerous instances Gair has shown manufacturers how to improve their packaging at definite cost savings.



Gair designers use their art to sell more goods, more quickly, more profitably for Gair customers. No long-haired, arty stuff here . . . but shrewd, practical merchandising ability.



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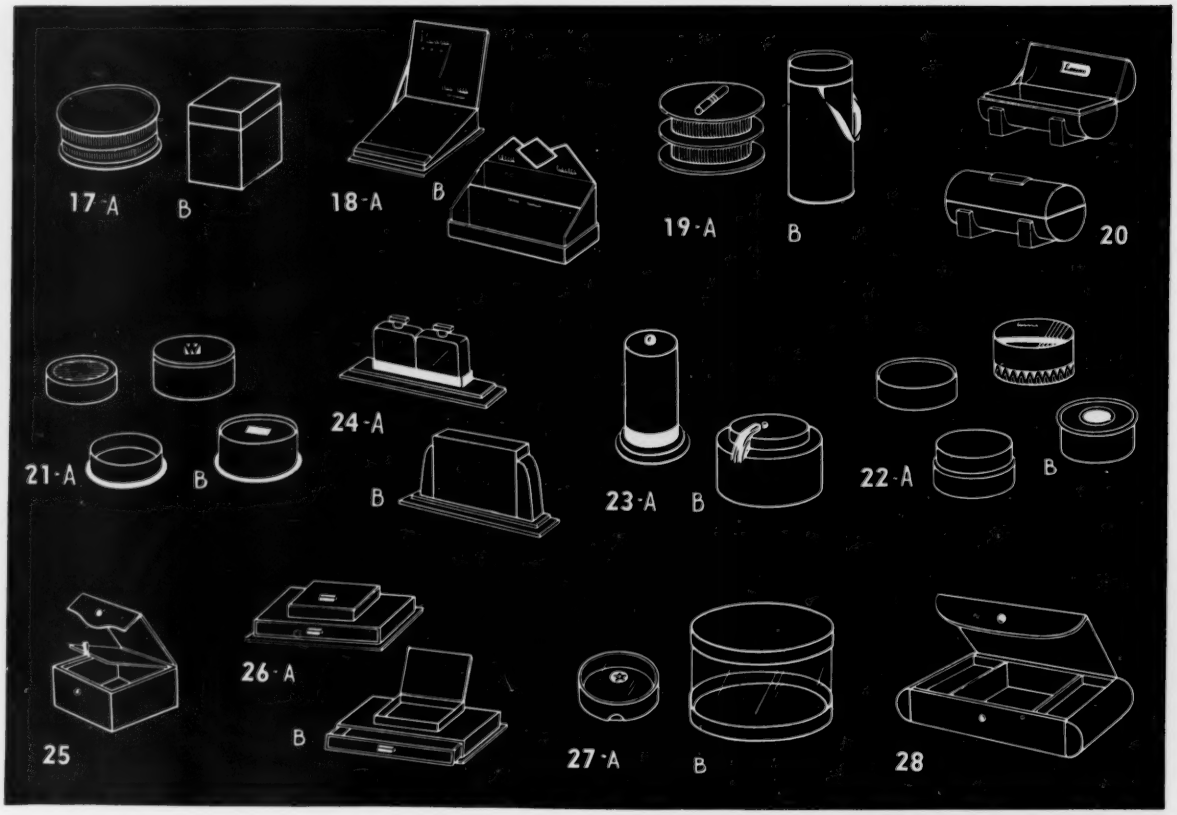
The folding carton has made enormous strides in recent years. In many cases Gair Cartons are now doing the job formerly done by more expensive methods ....and doing it better, too!

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CARTONS • DISPLAYS • SHIPPING CONTAINERS

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17. A, the round pill-box used for dispensing apothecary-pill prescriptions. In general construction automatically made as the shouldered pill but, of course, round in shape and extension added.
B, the shouldered utility produced in several standard sizes. Here the depth is greater than the square of the length and width. Used in the retail drug field for dispensing powders, "dry drugs," etc.

18. A, a set-up box becomes a smart display. Basically, an extension plus a tapered base, with a tray added to hold merchandise, and hinged panel for interior billboard.
B, a composite of base tray plus a folding board, printed on both sides and in several colors. Merchandise is packed and complete unit is ready for immediate "sales work," functioning upon arrival at the retailer.

19. A, a large round box with heavy died-out circles, plus a top handle of lacquered wood applied with band of foil, gives a modern motif.
B, a box well tailored in construction and design, with ribbon handle for ease in carrying.

20. An adaptation of a cylindrical container cut in two lengthwise, with shoulder for lid closure. Plastic pedestal adds to appearance, and functions as feet or base. Label inserted inside cover, and hinge strap or tape of ribbon to open.

21. A, a well-known round telescope box with projecting edge or extension base drum of transparent cellulose top.
B is same style of construction except drum is of paper died out with window or opening covered with cellulose.

22. A, shoulder style of face-powder box with curled edge top and regular paper covered drum.
B is regular telescope extension base construction of face-powder box, with drum built into base. Filled from bottom and sealed with plug and bottom label.

23. A is a glorified round box for perfumes; graduated extension base with band of velour over foil covering and plastic ornament on top; shallow shoulder on base to hold bottle. B has an enlarged base covered on top surface and died out to take shoulder, which runs straight down to bottom. With stamped metal top lacquered in colored design, plus silk tassel, an intriguing container for dusting powder, etc.

24. A, smart perfume-box built around graduated and elongated base extensions with shallow (functional) shoulder to hold two bottles. The cover (B), well tailored, augmented by plastic pieces, gives harmony of container and contents.

25. This container connotes character and quality of product; basically a base with recessed drum which is readily cut open for easy access to powder, yet snugly shut for travel, augmented by hinged cover with flange and snap button.

26. A, an adaptation of shell-style construction, back side closed, extension added; drawer or tray easily drawn out; plastic, wood, or metal pull. Regular base smaller, yet of proper dimensions. A suggestion for presentation of companion products such as men's wallets, keytainers, etc.

27. An adaptation where transparency and rigidity is desired. A is smaller, with top and bottom transparent, and telescope base and lid construction. Thumbhole added for ease in opening. B is larger, side wall is transparent, and base and cover are added for firmness and as closures.

28. Well tailored basically, with long-wearing cover such as pyroxylin-coated fabric, and series of trays forming compartments. Wood ends, well covered, with flat firm covered lid with snap button on front flange. This container has great after-utility, and many products, wherein container is handy storage after purchase, do well to use such a sturdy, well-wearing type of box. More costly initial cost, yet well worth it in consumer good will for long-life product.

in at the top edge and *turning over* onto the bottom. Better quality boxes are *bottomed*, which means gluing a rectangular piece of paper on to the bottom.

Certain products, such as toilet preparations, etc., are best suited to round containers wherein oftentimes the depth is a larger dimension than either the length or the width. Special automatic machinery has been developed for this type of construction.

In both of these special cases the basic construction is the same as that of the original set-up box.

Unlimited variety in the designs of set-up paper boxes can be accomplished by the addition of covering papers, and by combinations of shapes and accessories.

"CLEVECO"

The Fibre Can with BUILT IN Cellophane Lining . . .

. . . brings a new measure of product preservation . . . a new concept of sales-appeal to the fibre can.

PRESERVATION: flavoring and perfuming ingredients are retained in the product. No absorption by thirsty walls of the fibre.

OILPROOFNESS: many products can now be safely packed in the "CLEVECO" container.

LINTPROOF: no contamination of product by lint or fibrous particles.

SALES-APPEAL: The brilliant colors of the liner add dramatic "inside-attractiveness."

TASTEPROOF AND ODORPROOF: no taste or odor transmission thru the walls of the "CLEVECO" container.

MOISTUREPROOF: special constructions provide this feature when needed.

ECONOMY: costs on the "CLEVECO" package are extremely moderate . . . the lining negligible in cost . . . and the package made in one operation.

CLOSURES: either metal, or paperboard with same BUILT IN lining.





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Sell your product for a nickel or dime . . . or sell it for dollars . . . still Cleveland can bring you an ingenious transparent package . . . *priced right!* Here illustrated are a few examples of what we have done with acetate materials for the manufacturer with a limited package budget. Tell us your story . . . *and leave the rest to Cleveland!*

FIBRE CANS

Utility Containers and Specialty Packages

Our market-minded package engineers have developed *hundreds* of varied fibre cans . . . for products wide apart as bath salts and water pump packing. For your product, too, we can create a handsome, unusual fibre package, incorporating the special closure, design, etc., you require. Let us quote on your needs.

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CYLINDRICAL, CONICAL AND RECTANGULAR PAPER CONTAINERS



1. Sealright Nestyle moist food containers and pre-fabricated conical bottles.



2. Pavesco conical bottles and Excell-O Pure-Pak rectangular containers. Both pre-fabricated types.

The paper or fibre container for packaging milk and other products today occupies a recognized position in its field, although it has by no means entirely replaced the traditional glass container.

A number of advantages are claimed for the paper package in comparison with the glass milk bottle. Among these are the elimination of return packages requiring pick-up, inspection, washing, sterilization, etc. The paper package is substantially lighter than glass and—while subject to destruction under pressure—it does not present the breakage difficulties some times experienced when glass packages are fractured. The light weight makes for shipping economies particularly important under city traffic conditions.

From the retail store operator's viewpoint, the paper milk bottle eliminates the worry and expense of bottle deposits and refunds and makes for cleaner and more convenient package handling. Another advantage claimed for paper containers is the reduced inventory required since it is not necessary to invest in permanent or semi-permanent containers.

There are two basic types of paper containers—those delivered to the packager in fully erected form and those delivered in flat blanks and erected at the packaging plant. The fully erected types are manufactured complete in the container factory, sealed and shipped to the customer in dust-proof packages and are then filled and re-sealed in the customer's dairy, either on standard bottle filling machines or—in the case of some packages—on special machinery.

The second type is formed, set-up, completely paraffined, cooled and sealed in one continuous operation at the dairy itself. The package supplier here ships only printed and die-cut blocks which are made up on the paper machines in the dairy plant. Both types are, of



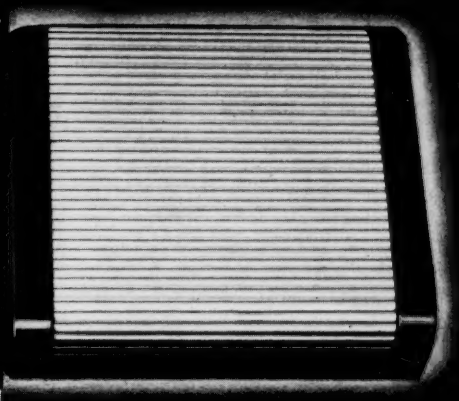
3. American Can pre-fabricated rectangular containers.



4. Reed milk bottle and plain-, wire- and cord-handled pails.



Streamlined STYLE



You are interested in volume sales of your product — cosmetics, watches, fountain pens, hair brushes, silk thread, electric razors, playing cards, writing paper, etc.

Correct packaging is essential for volume sales of your product. Our expert designers are ready now to create — without cost — the correct box for your product.

It costs no more to use "Waterbury Made" paper boxes.

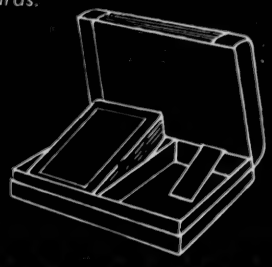
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In New York City telephone CIrcle 7-4716 — our sales representative will call to see you immediately.

Waterbury

N.Y. OFFICE: 30 ROCKEFELLER PLAZA
ROBERT E. CROTTY, Mgr.

This attractive paper box with its decorative corrugated plastic cover panel and novel ribbon device (automatically raises the cards when cover is opened) was created by our designers for KEM Streamline Playing Cards.



PAPER BOX COMPANY
WATERBURY, CONNECTICUT

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5. Kleen Kup, Nestrite and Purity round containers.



6. Sealcone paper milk bottles—assembled in the bottling plant.

course, capable of being printed in various attractive combinations of color.

The original cost of the paper bottle is less than that of the corresponding size of glass container. The cost per trip is a more debatable point involving a number of factors, varying, no doubt, under the different conditions under which various dairies operate. Among the factors to be included are relative shipping costs, in view of weight differentials, bottle breakage and loss factor, glass container cleaning costs, etc. The advantage of one container over the other cannot be stated in any general sense. It is, rather, dependent upon the operating conditions of the individual milk plant.

Paper "bottles" in their various shapes have lent themselves to a wide variety of uses, some of which, in the aggregate, may eventually surpass in volume the present-day consumption of paper milk containers. Among other products so packed are sweet and sour creams, chocolate milk, ice cream, orange and other fruit juices, cheeses, sausage meats, beans, pickles, peanut butters, jams, jellies, preserves, cake flour, dessert powders, etc. The rapid development of the quick-frozen food industries has resulted in the adoption of these containers in a number of instances.

MOLDED PULP CONTAINERS AND DISPLAYS

by THORNTON LEWIS*

Light in weight, water-proof, seamless, accurate in content and astonishingly strong, molded paper pulp containers have many unique advantages not found in any other packaging material. Such containers can be produced in almost any conceivable shape and offer inexpensive opportunities for individuality, originality and effectiveness in design.

The natural pulp gives the package an appearance of cleanness and freshness and is available in any of four standard colors—white, cream, buff and gray. Other colors can be obtained by introducing a dye into the pulp beater. Its slightly rough surface has a pleasant feel and its mesh design adds to its attractiveness for packaging, especially when used in combination with colored labels, wraps, etc. However, finishes can be applied either with flat dyes or lacquers of extreme lustre which effectively simulate porcelain or glass.

Molded pulp packages were originally most commonly seen in connection with imported Scotch liquors and are sometimes mistaken for papier-mache. However, pulp containers are not pressed into shape by plungers or dies, but "blown" in the interior of a mold, assuring accuracy.

The mold consists of a metal shell full of holes, lined on the inside with a fine metal screen, which accounts for the mesh design. When the double mold is closed, the



1. Two-piece molded pulp chest. Note high relief.

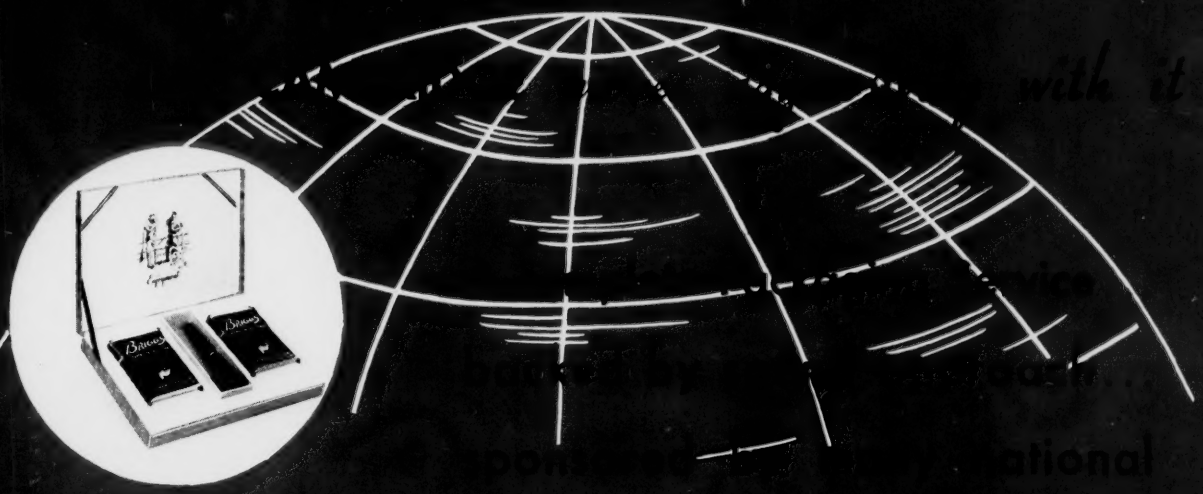
* President, Pulp Products Co., Inc.

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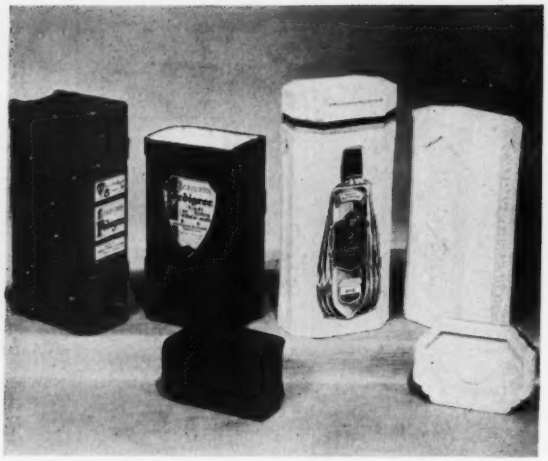
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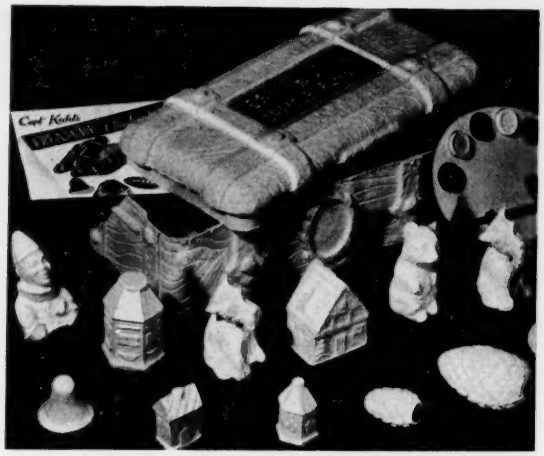
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2. Molded pulp bottle carriers. The one at the left has been colored. Lithographed labels are used.



3. A molded pulp box used to house a painting set of toys, likewise molded of pulp.

exact amount of pulp required is introduced automatically in water solution and driven, by pressure, through the holes, leaving the pulp evenly compacted inside the metal screen. The mold then opens and the completed pulp object drops on a conveyor belt and passes into a dryer. After being dried, it has water-proof advantages without further treatment.

The preparation of molds ranges from an approximate minimum cost of $200 for the smallest and simplest shapes, to $1000 for larger packages and novelty containers and runs even higher for bust and statuette displays, where full advantage is taken of the possibilities for complicated shapes and decoration. Lettering, trade marks, etc., can be embossed or debossed on the container, just as in other plastics and the process is so flexible that such lettering can be altered after the mold has been made, at a nominal cost, by changing the screen. Production from a single unit averages several thousand articles a day, so that deliveries can be made in practically unlimited quantity.

From these indications of mold costs and production norms, it is immediately clear that the molded pulp process is ideally adapted to volume delivery. Ten thousand units is the minimum run for which it is worth the cost of making a mold and, as the quantities rise to 25,000, 50,000, 100,000 units and upwards, the most economical results are achieved. Standard shapes for which molds exist make possible smaller quantities and as molds accumulate, in time distribution of smaller than 10,000 quantities may be made available. An additional facility in this regard is the fact that a portion of a mold may be blocked off, thus enabling the production of two different depths from the same mold in the process used for manufacturing.

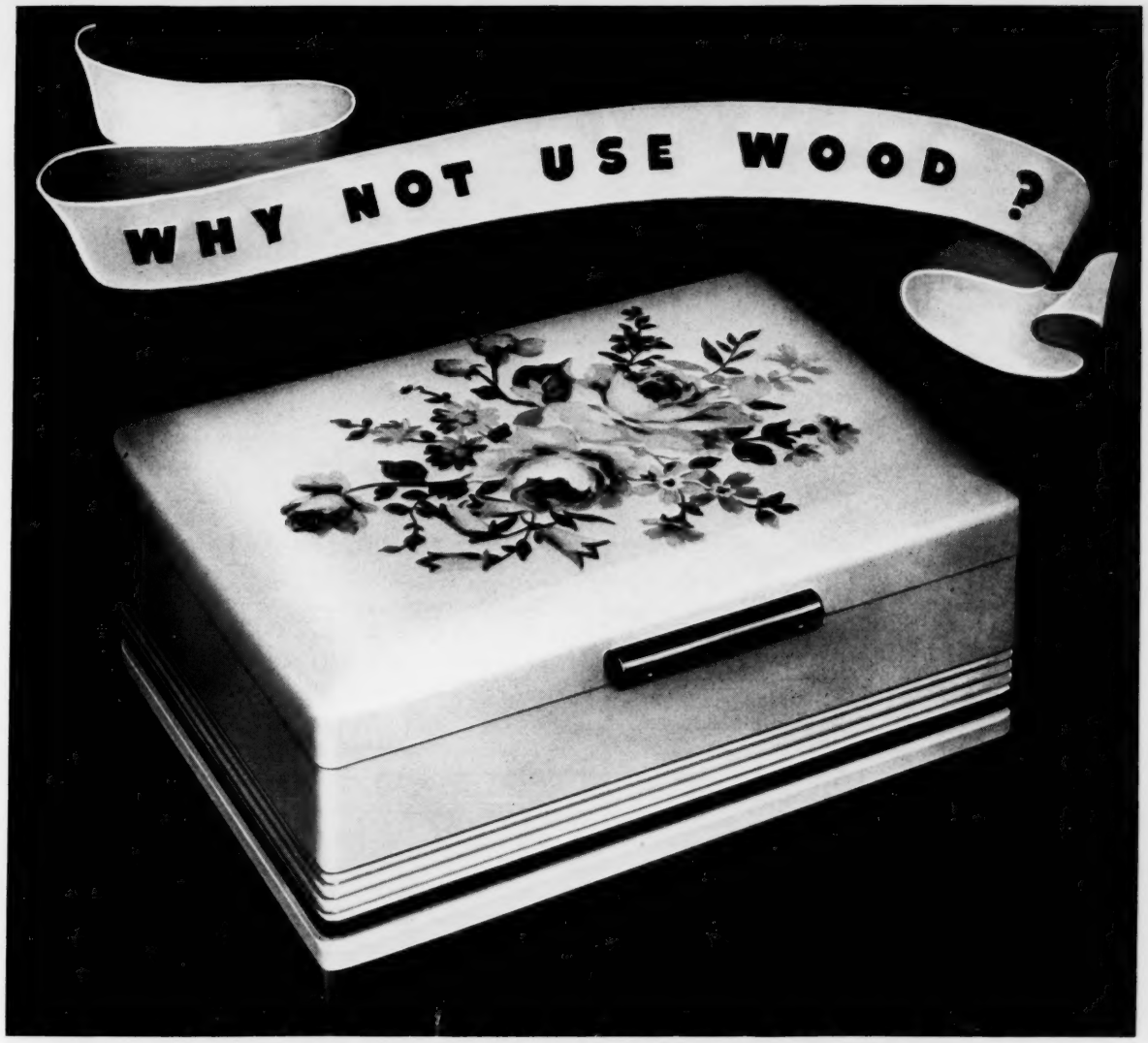
Molded containers are suitable for almost any type of merchandise. Sometimes a special coating is applied to the inner surface, to retain the natural qualities, when the container is for use in connection with food products. This is always true when the container is intended for liquids, semi-solids, etc.

The closure problem has a number of easy standard solutions. The simplest is to use a slip cover of molded pulp, which is blown integral with the body of the package and later separated by a saw-cut. Metal slip covers are also satisfactory because the molded pulp tolerances in the new and improved manufacturing process are very low. A standard, plain tin top forms a tight joint when applied over a bead which is molded around the top edge of the container. The metal ring and friction plug type of top are easily applied or the metal plug closures can be used alone, fitting directly to the pulp. A metal screw cap can be fitted tightly over screw threads molded in the container and hardened with a low cost material, which makes it very strong, but with an extremely small breakage factor. For liquids in bottle type containers, a cork sealed with a viscose cap forms a perfect closure.

LEATHER AND FABRIC COVERED BOXES

Leather, simulated leather, velvet, velveteen, brocades, and similar materials are frequently used as box coverings, particularly in cases where the box is intended for re-use or as a gift container. While the finest materials, such as high-grade leather, velvets, silks, and satins, are employed to a lesser degree than papers, their prestige and influence has been such that many paper boxes, and even some molded containers, are made with cover and even lining, surfaces simulating leather and fabric effects.

Boxes of this general type are usually built over the frame of a special fibreboard (of wood thickness) or



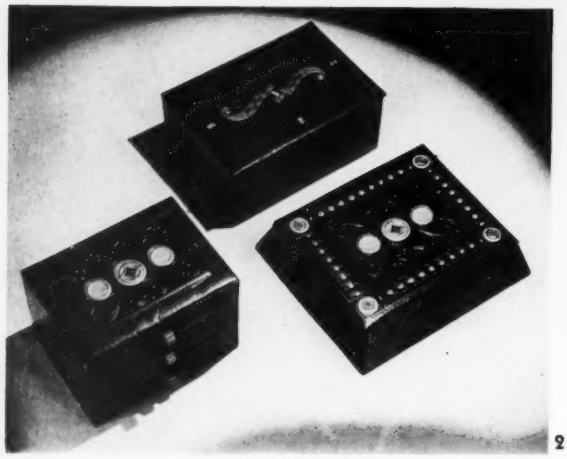
The container pictured above is finished in ivory with floral decoration and transparent cover lift to match. Used by a large baking company, 1938.

PETERSON BROS.

Designers and Manufacturers of Novelty Wood Boxes

165 N. ELIZABETH STREET • CHICAGO, ILLINOIS







1. Small tooled leather jewelry boxes. Photo courtesy Dennison Manufacturing Co. **2.** Embossed and tooled utility boxes for service as re-use containers. Photo courtesy Durand Manufacturing Co. **3.** Fabric and leather covered drum and rectangular types. Photo courtesy Weaver Manufacturing Co.

over a wood frame. Others are built over a metal shell, stamped out on punch-presses. The application of the coverings follows methods similar to those used in ordinary set-up paper-box making, the more expensive and exacting work being done by hand, while long runs are often done on machinery. Boxes are made in an extremely wide range of sizes and shapes, and while the rectangular and drum-type boxes predominate, a very large proportion of all boxes vary from these standardized sizes to include domed tops, ovals, octagons, etc.

A wide range of effects is possible when leather or imitation leather is used. Embossing and tooling processes are used to simulate antique tooled leather. Masks and color sprays are used to achieve colorful, decorative effects. Relief embossing is frequently used, both on the tops and sides of containers.

The extreme flexibility of fabrication, involving as it does no mold or die charge, permits their use on small initial orders to gauge a market. When large quantities are involved, the embossing-die charges are found to be relatively small. Fine leathers such as calfskin, morocco, and reptile and fine fabrics, including the higher-priced velvets and brocades, are frequently used for jewelry boxes where the size of the box permits the economical use of even these expensive coverings. Cheaper leathers such as sheepskin, cowhide splits, and the like are more often used for larger boxes, and while generally inferior in wearing qualities to some of the imitations, particularly pyroxylin-coated cloths and papers, more users find it advantageous to specify leather rather than a substitute because of the effect on merchants and consumers. When, however, extensive re-use is contemplated, and the more expensive leather and fabrics are eliminated because of cost, it is advisable to utilize one of the synthetic products.

Most notable during the last year has been a trend towards the combination of leathers with other materials, particularly with wood, to form containers having the best characteristics of both materials. Thus wood is utilized for the rigid portions of the container and leather, in the form of a flexible flap, is used as a cover. The introduction of the zipper and the snap-button closure—both borrowed from the textile and pocketbook trades—has served to make possible a wider range of flexibility in design.

Leather boxes are being widely used today in the cosmetic, baked goods, candy, stationery, hair-brush, hosiery, and novelty industries, and in the jewelry field in particular. Their use has been extended in recent years to a number of other fields for gift and holiday presentation. A growing trend towards the use of leather- and fabric-covered boxes is noted in the cosmetic industry where the tendency in gift packaging is towards the preparation of traveling kits and dresser kits, both types of packages being particularly suited to the leather and fabric medium.

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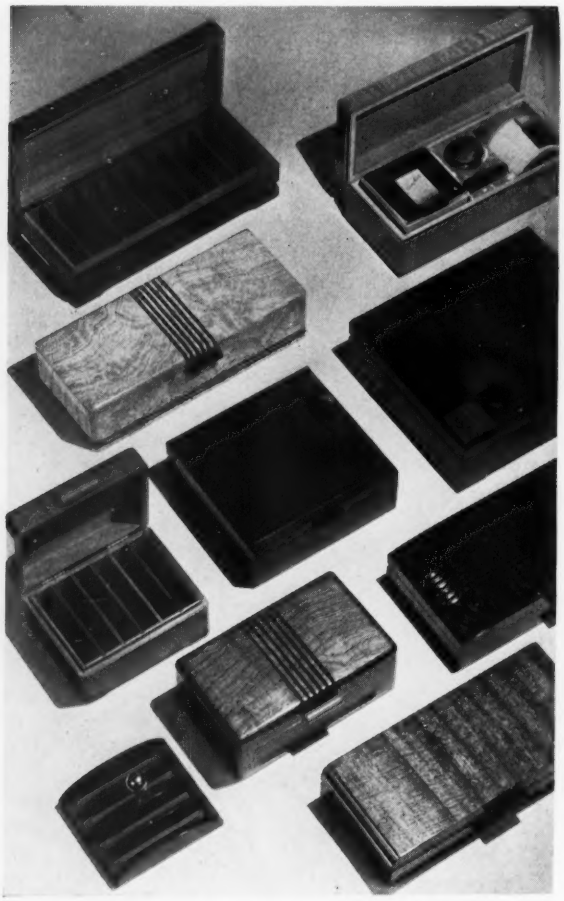
FANCY WOODEN BOXES

by E. H. BERGIN*

The designing and manufacturing of a wooden box for the merchandising of a specific product are no longer confined to simple rules of box making. Today, there is a definite understanding of all involved principles, with the result that wooden boxes have found a prominent place in the field of packaging.

Since all wooden merchandising boxes are made either of all lumber or veneers or a combination of both, the manufacturer's first consideration is the kind of lumber needed for the job. The most widely used are gumwood, poplar, basswood, cedar, mahogany, walnut, maple and redwood. Most of the larger manufacturers buy air-dried stock in 4 by 4 and 5 by 4 thickness and fabricate it to proper sizes and thickness in their own plants. Drying of lumber before fabricating is perhaps the most important item of consideration in box making. Large, modern dry kilns with up-to-date testing methods are a part of every modern factory.

* Sales Manager, The Pilliod Cabinet Co.



1. Modern veneer effects with interior compartments and plastic or painted wood handles. Photo courtesy Pilliod Cabinet Co.

The finishing of a cedar box is a comparatively simple job, providing an excellent grade of shellac and varnish or lacquer is used. After one or two coats of shellac are applied as a sealing coat, each box must be hand sanded to remove the raised grain of the wood and then the varnish or lacquer is applied for the final coat. After these finishing coats, boxes must be kept in a dust-proof drying-room of the right temperature for twelve to fourteen hours.

The application of other finishes, particularly in colors, involves more detail. In applying a black lacquer, for example, a box must be first given a coat of lacquer sealer over which is applied a heavy body coater called surfacer or undercoater. Between each application of sealer and surfacer a hand-sanding operation takes place to provide a smooth surface.

One of the outstanding developments in the fancy wooden-box field is the rare-wood finishes that are applied. These expensive-appearing finishes are exact reproductions of a wide variety of richly-grained woods that ordinarily are too costly to use in popular-priced merchandising containers. Usually a box made of gumwood is used to receive this finish, which is applied by special machinery designed for boxes only. After the necessary sanding operations and the required number of preliminary finishing coats are applied, the rare-wood grains are applied, afterwards touched off by the final lacquer coats. These boxes are lined with various materials to enhance their beauty, such as imported papers, velvet, doeskin, leatherette.

The eye appeal of such containers is naturally of supreme importance, but after the prospect is attracted to the box and the merchandise packed within it, his judgment must be confirmed by the re-use feature that may be present. The popularity of re-use containers has steadily increased for many years, and today many products of national reputation find their way to the consumer's hands through such containers.

Such re-use features may be of two types. Many products, such as artists' tools, surgeons' and mechanics' instruments, dental supplies and similar items, require a wooden chest intended to be re-used as the permanent receptacle for the numerous small parts and packages which go to make up the unit of merchandise.

On the other hand, wooden containers are coming increasingly into use as re-use packages for items of merchandise not ordinarily stored or used in conjunction with the receptacle in which they are sold. In such cases, the re-use feature is found in the general public acceptance of a carefully planned wooden container as a household or office accessory. Obviously, in such in-

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SALES APPEAL

DUST PROOF

LOW COST

EFFICIENT RE-CLOSING

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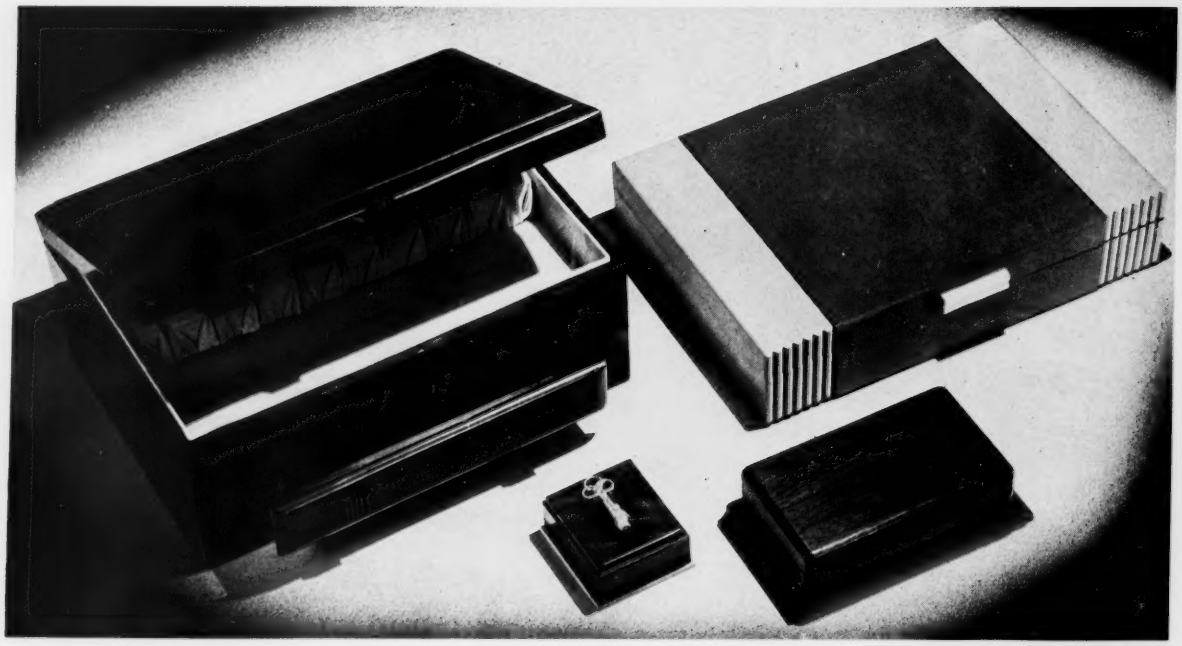
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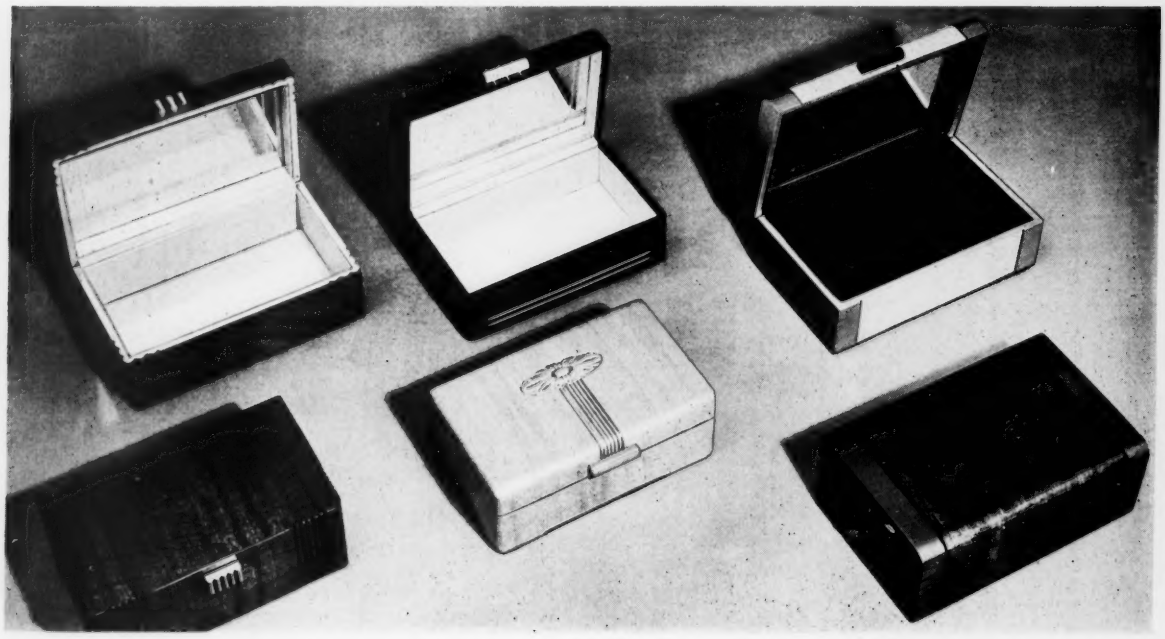
Incorporated 1858

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SALES OFFICES: 475 FIFTH AVENUE, NEW YORK CITY – STATLER BUILDING, BOSTON



2. The wood box, properly lined to form a tarnish-proof chest, is still a favorite in the silverware industry. Photo courtesy McGraw Box Co.



3. Cosmetic kit boxes lined with satin and with inner lid mirrors. Photo courtesy The Pilliod Cabinet Co.

stances, whether the function of the container be to serve as a letter box, cigarette box, or what not, its value as a re-use package is dependent upon extremely careful planning and upon a degree of finish and a quality of design which, together, will fit the item for use in conjunction with fine furniture. The fact that most office and home furniture is of wood adds to the attractiveness of the wooden container for re-use applications.

One of the unusual developments of the wooden-box industry has been the use of acetate in providing tops of complete transparency. The combination of the two makes possible a display case or chest with considerable rigidity but without sacrificing the transparent feature. It provides the perfect box for the manufacturer who requires full display of his product, but with the protection that a closed container gives. These new boxes are being used for packing silverware, fruit cakes, cookies, candies, jewelry, etc.

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SECTION THREE

BAGS

Pages 131 to 154

PAPER BAGS

TRANSPARENT CELLULOSE BAGS

METAL FOIL BAGS

BAG CLOSURES

ENVELOPES AND PACKETS

HEAVY DUTY MULTIWALL PAPER BAGS

TEXTILE BAGS

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PAPER BAGS

by GEORGE E. CHISHOLM*

In the cracker barrel days, a paper bag was just a container. Today, the paper bag enjoys a prominent place in the merchandising of a wide variety of commodities. This change was made possible through advancements in the art of paper making and printing. The pace of this advancement was quickened through the competition of other types of packaging materials which have made great strides in the field of packaging through the development of automatic machinery.

Improved papers made more attractive bag packaging possible and, at the same time, provided better printing surfaces for improved design. Multi-color printing machinery, built especially for bag printing, has provided shelf display value which has placed the paper bag on a par, in this respect, with other types of packages found on the retailer's shelves.

Automatic packaging machinery has further strengthened the position of the paper bag by making high speed packaging possible.

There are seven advantages which, alone or in combination, give the paper bag its place in the packaging field. These are:

1. Economy
2. Protection
3. Identification
4. Unit of Measure
5. Liners
6. Display Package
7. Shipping Unit

Here are some typical examples of the application of paper bags to these fields of usefulness:

Economy: Early in 1935 a prominent coffee roaster was able to capitalize on a unique distribution system to change from a relatively expensive container to a less expensive, yet attractive and efficient paper bag. By doing this, the coffee roaster found it possible to reduce the price of his coffee to the consumer, and increase the market for his product.

Protection: Sugar refiners are now packing consumer units of sugar in sift-proof bags which are filled and sealed by automatic machinery. These double-walled paper packages offer complete protection to the sugar in its journey from the refiner to the wholesaler, retailer and consumer. Refinery purity is delivered to the kitchen because the paper package protects the sugar from dust, dirt and contamination.

Identification: In order to protect themselves from the activities of "bootleg" parts manufacturers and to make sure that dealers and car-owners get genuine factory replacement parts, the larger automobile manufacturers are using paper bags (as well as other types of containers) to identify parts which are not easily stamped or trademarked.

Unit of Measure: Often it is desirable that the ultimate users of the product receive a pre-measured quantity. A common example of this is in the case of coffee urns and other coffee-making devices, where a uniformly good cup of coffee can best be obtained by using the same pre-determined quantity of ground coffee for each batch. The inexpensive and easily opened paper bag is ideal for such purposes.

Liners: Many dry products which are packed in tin or in cartons, need to be kept from contact with the wall of the container. Most manufacturers of drug products and other dry materials find paper bags indispensable for this purpose.

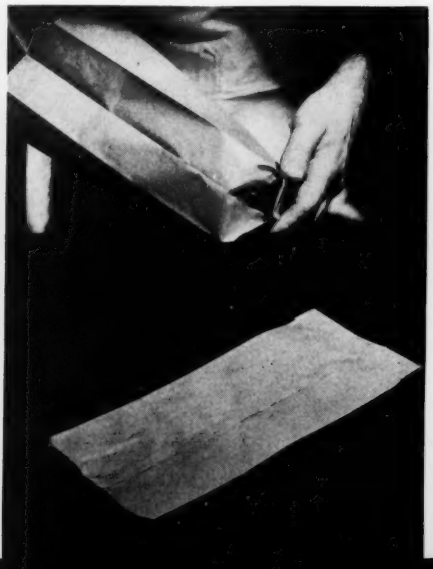
Display Packages: While the paper bag has long served as a display package for such products as coffee and flour, the advent of transparent cellulose and combina-

* Sales Promotion Manager, Union Bag & Paper Corp.

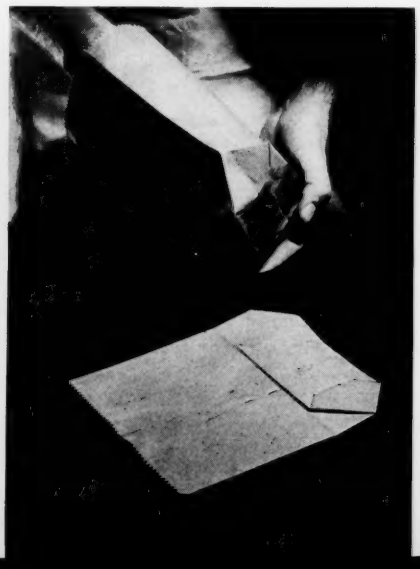
1. Flat bag with straight plain bottom.



2. Square back bag showing forming of bottom.



3. Satchel bottom bag.



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To produce better Transparent Packages

Producing transparent bags and envelopes in the widest variety of styles of any source, U. S. E. has every modern facility for turning out a better built transparent package for you.

U. S. E. designers and technical men bring to your job the collective experience of many years in packaging almost every sort of product for which a transparent container is a sales aid.

U. S. E. is equipped for all cellophane printing techniques. And an important feature of your U. S. E. package will be the brilliant quality of the printing best suited to your product.

TRANSPARENT CONTAINER STYLES

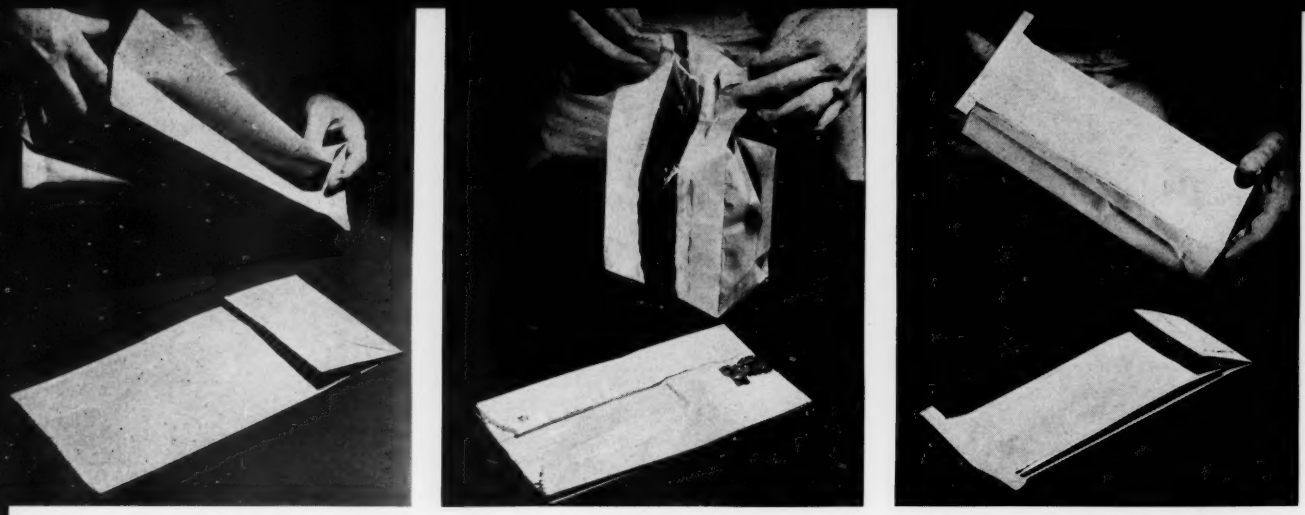
As illustrated are, from top to bottom

E-Z-PAC Square Expansion Bag
E-Z-PAC Satchel Bottom Bag
Die Cut Envelope
Pac-Ket Envelope
Display-Pac Envelope
View-Pac Envelope
E-Z-Pac Flat Bag

Transparent Container Department
UNITED STATES ENVELOPE COMPANY
Springfield, Mass.



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4. Automatic bag. 5. Automatic bag with transparent panel. 6. Automatic bag with tin-tie closure.

tion cellulose and paper bags, and the vast improvement in bag printing, have transformed the paper bag into a package of exceptional display value.

Shipping Unit: For non-rigid or semi-rigid products the heavy paper bag recommends itself as the most economical shipping container available. The heavy square bag used for shipping twenty-four one-pound units of coffee safely and economically is a good example of this field of service.

There are four shapes of bags available. These are, namely, the flat, the square, the satchel bottom, and the automatic or self-opening. Each shape serves its own specific purpose and has its own advantages and disadvantages over the other shapes. A brief discussion of these follows:

The Flat Bag: This shape, as may be seen from the accompanying illustration, is simply a tube of paper with one end turned over and pasted down to form the bottom. Due to its more rapid speed of production this is the most economical shape of machine-made paper bag. However, since it has no gusset or tuck at the side, to preform the bottom, the contents will necessarily bulge out. In many cases this is an advantage since it gives the appearance of extra bulk or quantity whenever or wherever the package is displayed.

The Square Bag: This differs from the flat bag in that it has a tuck or gusset at each side. The bottom can be formed by thrusting the hand inside of the bag and squaring it out. Because it has three definite dimensions, the square bag is better adapted to package articles of a cubical form.

The Satchel Bottom Bag: This shape is made from a flat tube without tuck or gussets in the side, but does have a small diamond shaped pre-formed bottom. The chief advantages of this shape are:

1. Its wide mouth which makes filling easier.
2. Its pre-formed bottom which enables the bag to stand upright while being filled.

The Automatic Bag: This shape, sometimes known as the self-opening, is in some respects the most efficient of all machine-made paper bags. Due to the extreme complications of manufacturing the square preformed bottom, it is relatively more expensive than the other shapes of machine-made bags and somewhat more inflexible in its available combinations of dimensions. It can, however, be opened easily and stands absolutely upright, either empty or filled.

TRANSPARENT CELLULOSE BAGS

by P. S. MANLEY*

Protection problems encountered in the packaging of foodstuffs and other perishable, easily damaged products have been more than effectively solved by the development of numerous special grades and weights of transparent films. Bag construction has been perfected to the point where sturdy, single-wall and double-wall bags are now available in many different styles and in innumerable sizes and shapes to suit almost every package unit requirement. Printing has also progressed and transparent cellulose bags may now be had printed by letterpress, aniline or gravure, in from one to six colors, using type set-ups, zincs, half-tones or full color process plates, effects being obtainable that compare with printing on paper or metal containers.

Visibility, however, still remains the principal reason for packaging in transparent cellulose bags, although in many instances where such containers are adopted, this sales-quickening virtue of perfect transparency may

* The Dobeckmun Co.



IS STANDARD WRAPPING SEALTITE-SANITAPE*

For Pills, Tablets, Capsules



The New Unit Powder Package

Seals a unit-measured dose of powders, crystals or granules in an air-tight, water-proof package.

Yet Always Susceptible To New Adaptations—The advantages of this unique packaging—cleanliness—protection—convenience—appearance—economy—are so outstanding as to have gained general recognition, where a fine, pharmaceutical product is considered.

Yet the endless adaptations of the principle of unit wrapping, continually provide new packages which are smart, arresting, practical—and economical—for sampling or standard sale packages.

We shall be glad to give you details as to possible applications in your particular situation.

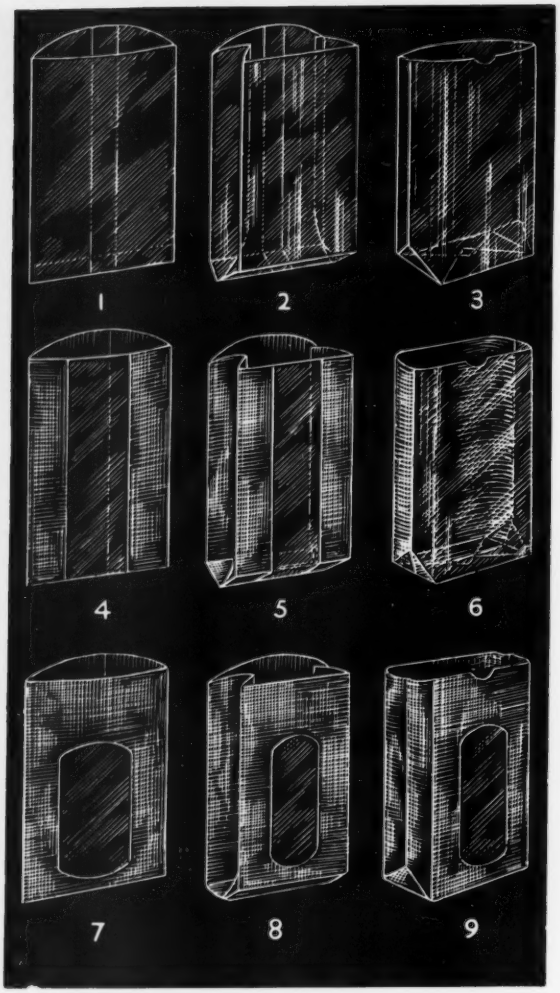
* Sealtite-Sanitape is a method for wrapping oval pills and capsules as well as tablets in air-tight, moisture-proof pockets—formed by welding two sheets of specially prepared moisture-proof cellulose, foil, Rxfilm, or laminated and coated materials around each individual unit.

THE UNIQUE PHARMACEUTICAL PACKAGING SERVICE WHICH IS

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General types of transparent bags. **1.** Flat. **2.** Square. **3.** Satchel. **4.** Flat, window style. **5.** Square, window style; **6.** Satchel, half and half. **7.** Flat die cut, window style. **8.** Square, die cut, window style. **9.** Satchel, die cut, window style.

or may not be one of many extremely powerful incentives prompting their use.

It is safe to say that, if a product possesses any sight appeal at all, transparent cellulose bags will increase its sales materially. In the first place, such visible packaging makes a strong appeal to the retail merchant, leading him to give it preferred space on counter, table or shelf. In the second place, the brilliance and flash of these units attract many more eyes than packages of more subdued, less striking appearance. This leads to many purchases on the impulse of the moment and a consequent upswing in total sales. Certainly, when any new type of product, new variety or brand, is introduced—and all products are always new to part of their market—the factor of visibility greatly aids the dealer in acquainting the consumer with the item. Often, indeed, visibility permits the consumer to learn about a product *in spite of* dealer inertia.

Another important sales-making attribute of transparent bag packages is the buying public's invariable acceptance of all such packages as being *fresh* and sanitary. The reason is that the products can be seen, can be felt, and yet cannot be actually touched by the examiner or contaminated in any way.

Protection now also ranks high as a motive for the use of transparent cellulose bags in packaging many products. Where extra strength is required, double-wall bags are available; where such qualities as moistureproofness, semi-moistureproofness, air-tightness, water-tightness, resistance to oil and grease penetration or other protective qualities are demanded in a container, made-to-order bags of special transparent films may be had.

Styles of Bags

Transparent cellulose bags are manufactured in three standard styles—satchel bottom, square and flat.

Satchel bottom bags are the most extensively used, this type finding its largest use in stock, unprinted sizes employed by retail stores for the "store packaging" of bulk items such as peas, beans, rice, nuts, sugar, spices, hard candies, tapicoa, prunes, etc. When filled, satchel bottom bags have flat bottoms that permit upright display without support. In satchel bottom bags, also, the proportion of height to width provides a more attractive package than the same size square bags would.

Cardboard inserts are frequently used to give added rigidity and shape to the top and bottom of the package. Gummed seals are then applied to both ends to lend a finishing touch to its appearance. Until recently it has been necessary to insert these cardboards by hand at the time of packing; however, cellulose satchel bottom bags with "built-in" board bottoms are now obtainable which eliminate this operation.

Square bags enjoy, possibly, the most diversified use, due to the variations that can be had in their length, size of side tucks and face width. They are used to package all sorts of edible items, textile products, hardware, etc.

Flat bags find their principal use in the packaging of light objects such as nuts, potato chips, etc., where "bulging" produces an illusion of larger quantity, and for hosiery, gloves, textiles, etc.

All three types may be secured in either single-wall or double-wall (Duplex) construction. Duplex bags are used where extra protection against shipping or handling hazards is required or where the weight or bulk of the packaged commodity makes necessary greater container strength. Specific protection requirements are met by having the inside and outside walls of the bag made of different films.

For specific uses, square and flat bags may be had with "double-fold" bottoms, or with bottoms and seams sealed by heat alone or by heat plus adhesives. Another new type utilizes a square reinforcement, adhered to the bottom of a satchel bag, to achieve extra strength at the seam points, where greatest wear occurs. This "preventive patch" is usually made of a tinted grade of material to aid users in selling its advantages to dealers and then, in turn, in selling the ultimate consumer. In the newly developed frozen foods industry, such bags are coming into wide-spread use as carton liners.

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BECAUSE we offer the safest and most economical Bulk Shipping Containers for units ranging from twenty to one hundred forty pounds . . . . . and because these bags are closed at both top and bottom with the well-known sealed Bagpak Cushion Stitch closure, thus effecting a sift-proof, moistureproof, pilferageproof container with surplus strength; each month sees their use ever extending into new fields and for products where the "paper bag" was never before considered as a possible package.

. . . . and because modern Bagpak Packing Equipment may be used for all or any part of the packing cycle in the proper utilization of these bags, thus throwing entire and undivided responsibility for the successful packaging of your product on us . . . . it would appear that you would be well advised to let us study your requirements.

"One Man Package"



"Easy to Handle"

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BAGPAK * INC

220 East 42nd Street New York City

Combination or window bags continue to expand their field of usefulness where visibility and economy are essential requisites. There are countless papers that may be fabricated with transparent cellulose and converted into bags in any of the three major styles. Moistureproof papers are used with moistureproof cellulose to give complete moistureproof qualities to the finished package. Likewise ordinary papers are used with plain transparent material where keeping qualities are not important. The width of the window may vary from a narrow strip of cellulose in the center of a bag to a wide strip spanning the entire front. It is sometimes extended to cover the front and sides, providing only a narrow strip of paper which serves as the extreme back of the bag.

Bags of the window type lend themselves beautifully to printing. Unusual and striking effects may be obtained by using brilliantly colored papers and contrasting inks for printing. Window bags are preferred by many packers not only as a measure of economy, but because they are easily opened and filled, less care is required to keep them in good condition, and they have outstanding display value.

Printing may be had on either the inside or outside of the bag walls. Printing on the inside of the film is known as "reverse printing" and is used when added brilliancy is an advantage and when there is no possibility of the printing inks affecting the packaged commodity. In the case of Duplex bags, printing is usually done in "reverse" on the inside of the outer wall.

Automatic bag filling equipment has reached a new level in perfection. Automatic, semi-automatic and hand operated filling, closing and sealing machines are now available for every type of bag, production in bag filling equipment reaching capacities as high as 120 bags per minute.

The backbone of the large industry that has been built around transparent cellulose bags is the intensive research carried out during the past ten or so years by transparent film manufacturers. Due to this, transparent bags have developed from a packaging medium once used purely as a novelty into a product with many definite utilitarian uses and now compete for preference in packaging markets with the longer-established types of containers. Due to this also, anyone considering the development of a new package need not make a blind choice but has at command an immense amount of information to guide him. This available information covers not only the advantages or disadvantages of such transparent cellulose bags for packaging almost every known product, but also every phase of closing, cartoning, shipping, display and merchandising such containers.

METAL FOIL BAGS

by D. P. CARPENTER*



1. Oil-bearing food products and powdered products requiring a high degree of moisture protection are frequently packed in tightly sealed metal bags. Often the foil is used in combination with glassine. Courtesy Reynolds Metals Co., Inc.

Metal foil bags are used primarily for the packaging of oil-bearing food products which are susceptible to rancidity. They have been widely adopted in the potato chip industry for this reason and are utilized for coffee, pretzels, cheese sticks and similar items.

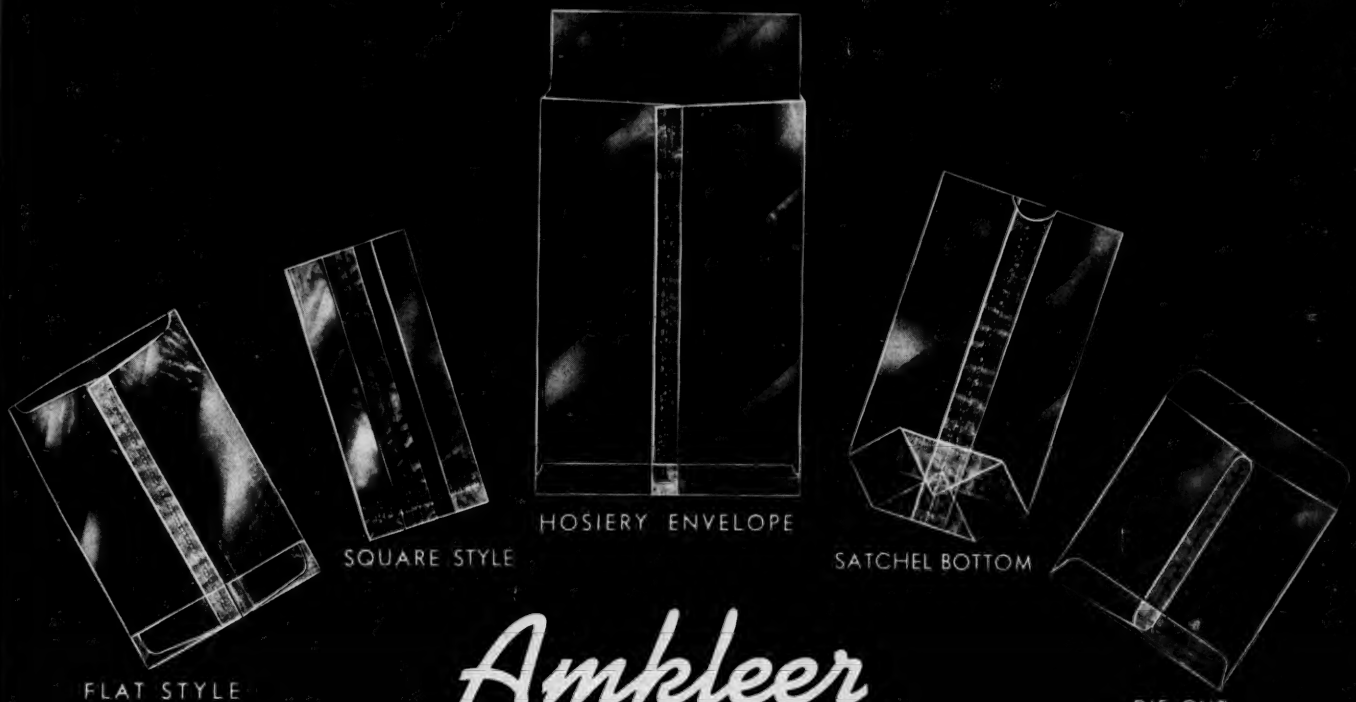
The metal bag consists of a thin sheet of shiny, flexible aluminum metal laminated to paper (glassine, greaseproof, bond, cellulose, etc.) and formed into a bag. The metal surface is usually exposed and when printed in bright colors results in a package having powerful eye-appeal on dealers' shelves.

Surpassing the eye-appeal value of the metal bag, however, is its remarkable protective properties, of which the limited scope of this article permits only a brief description. Foremost among these protective features is the fact that the metal bag excludes all light—light which otherwise causes rancidity and spoilage. For example, such products as potato chips and salted nuts are especially sensitive to light, only a couple of hours' exposure being sufficient to cause a photo-chemical reaction to take place and this results in rancidity.

A second important feature of the metal bag is its high resistance to moisture transmission. In one reported

* Advertising Manager, Reynolds Metals Co., Inc.

A BAG FOR EVERY PURPOSE and *Every* BAG A *Better* ONE



Amkleer

CELLOPHANE BAGS

In the two great factories of the American Paper Goods Company, millions upon millions of bags are made for everything from pop-corn to fine silk hose. Plain bags . . . and gorgeously printed ones . . . flat bags, square bags, die cut envelopes and satchel bottom bags.

Hundreds of different bags . . . but all have certain things in common. All bring their users the assurance of Amkleer Cellophane quality . . . a stronger bag because it's made better and doubly insured by a rigid system of inspection.

All bring the user, too, the security that comes with Amkleer Cellophane Service . . . uniform quality, careful, prompt deliveries, fullest cooperation in design and planning.

No wonder then that . . . even in 1938 . . . the number of customers on our books has been greatly increased. No wonder then that the name—Amkleer—has become the symbol for the finest Cellophane bags the market affords.

We invite your inquiries. Address our nearest sales office to secure samples, quotations and full cooperation in planning a better package.

We keep a large constant stock of Amkleer Envelopes and Flat, Square and Satchel Bottom Amkleer Bags always on hand for quick delivery. Wire for quotations and samples.

THE AMERICAN PAPER GOODS COMPANY

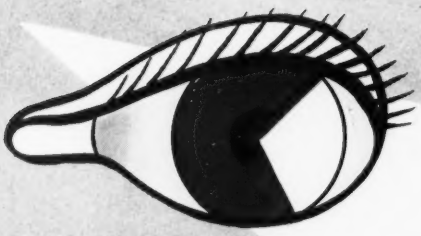
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MAKE them BUY

It's an old story—there are none so blind as those who won't see. Or maybe we should say, there are none so blind as those who see but won't notice. And with hundreds of products surrounding her how can Mrs. America notice them all? Bewildered, she looks around. One, two, three or possibly four will stop her roving eye. The one, two, three or possibly four products that are dramatically packaged; that are designed to capture wandering glances and hold them fixed. These are the type of packages that we supply—scientifically devised to tell a story of quality and superiority at a single glance—scientifically created by skilled packaging engineers who know what it takes to flag the eye to a dead-stop—scientifically produced by machinery that uniformly turns out a bag better made, better printed, and better looking.

Whatever food you offer we've a bag that will carry it safer, move it faster and add substantially to its spontaneous palate appeal. Get all the facts about our complete line by writing for samples and prices.

"Bagging the Nation's Foods"

CONTINENTAL BAG SPECIALTIES CORP.
26th Street and Hudson River, New York, N. Y.

ONEIDA PAPER PRODUCTS, INC.
601 West 26th Street, New York, N. Y.

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CROWN
COFFEE
ONE POUND NET WT.
FIT FOR A KING · FIT FOR A KING · FIT FOR A KING · FIT FOR A KING
A Mellow Blend
"FIT FOR A KING"
© 1938
CE CREAM • CAKE AND CANDY BAGS

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2. Metal foil envelope, printed in three colors, used for soft drink powders. Courtesy Reynolds Metals Co., Inc.

test, metal bags of potato chips, after 40 hours continued exposure to saturated atmospheric conditions (95–100 per cent R. H.) at 100 deg. F., showed only 0.99 per cent moisture absorption, against 18.70 per cent absorption by a non-metal bag under identical conditions.

Metal bags are also reported to have extremely high resistance to insect infestation.

Metal bags are made in both the square type and flat type, and both are available in the duplex style, that is with an extra inner liner of glassine, parchment, greaseproof, or other papers.

The bags are used either inside an outer paper carton or can, in which case they are unprinted, or used alone when they are printed in one, two, or more colors. Tin ties can be provided which give the bag an excellent closure and a re-seal device enabling the consumer to securely close the bag each time, thus keeping the contents in better condition.

BAG CLOSURES

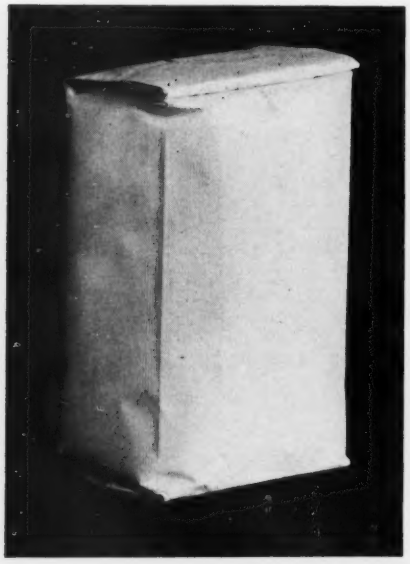
by E. G. KUHN*

The past year has further emphasized a pronounced revival of interest in the bag as a consumer or retail package. Today we find this most economical of packages offering an interesting combination of merchandising appeal and practical adaptability to a wide range of staple items. A vastly expanded choice of materials which can be successfully fabricated into bags, an innumerable array of finishes, decorative effects and combinations of these materials offer a distinct challenge to more expensive types of packages.

* Consolidated Packaging Machinery Corp.

Abreast of this trend we find fully developed equipment in wide variety designed to establish with the handling of bags the same high standards of packaging efficiency heretofore confined to other forms of containers. Bag construction, materials and equipment, however, are each important phases of packaging in themselves and it is therefore our purpose to present only a brief outline of some of the more widely used seals or closures employed on the modern retail or consumer sizes of paper bag package.

It can be assumed in reference to each type of seal that





1. Square bag, filled and closed with automatic machine. Pasted closure. **2.** Satchel bottom bag, closed by tying. Photos courtesy of the Consolidated Packaging Machinery Corp.

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Presenting

A complete assortment of Transparent Packages from the country's best equipped plant devoted exclusively to the printing and fabrication of—

Cellophane

SHELLMAR

BAGS

Transparent bags of every style and type, many embodying exclusive construction features, in a very wide size range, either printed or unprinted.



ENVELOPES

Available in every popular size and style, unprinted or with printed designs in from one to six colors. Particularly adaptable to Textile and Notion products.



SHEETS

Whether your need is for a sheet the size of a stamp or one large enough to wrap a Ham, SHELLMAR can supply it, perfectly printed in one to six colors.



ROLLS

First to present Printed "Cellophane" in continuous rolls, SHELLMAR still leads in producing rolls printed in from one to six colors.



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PRINTED "CELLOPHANE"

TRAY-PAX

Especially efficient as a package for Sliced Bacon, but equally useful for a variety of other products. Another SHELLMAR innovation in the field of transparent packaging for utility and point-of-sale effectiveness.





SHELL-VUE

Gummed Transparent Posters with colorful designs printed in multicolor, providing the ideal point-of-sale reminder and perfect tie-up with periodical, newspaper and other forms of advertising. Economical, long-lived and effective.

SHELL-PAX

An exclusive SHELLMAR product, combining the advantage of a transparent bag with the strength and uniform size of a back-piece of cardboard or other substantial material.



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SHELLMAR

The user of SHELLMAR PRODUCTS buys more than packaging material. He commands the serious, thoughtful attention of a corps of designers, technicians, merchandising counselors and craftsmen, working with the finest equipment available in the most modern plant of its kind in existence.

With a wide variety of package-forms from which to choose, and with every recognized printing process available—gravure, letterpress and aniline—these men build packaging programs that combine careful engineering, sound designing and meticulous execution in production.

SHELLMAR service costs no more—and because of its efficiency and completeness frequently offers greater returns for the same investment. It is available in every locality; inquiries to either of the three principal offices listed below will bring prompt attention from your nearest local office.

SHELLMAR PRODUCTS COMPANY

3115 EMPIRE STATE BLDG.	MOUNT VERNON	224 S. MICHIGAN AVE.
New York, N. Y.	Ohio	Chicago

This insert is a specimen of "Shell-Pli, Shellmar's exclusive laminated product
U. S. Patent No. 1867314, No. 1867405, No. 1818459, No. 2129929

PRODUCTS COMPANY

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Are Your Products

Shelf-Conscious?

Today your product must be packaged in a container that will stand up and do a real selling job.

The grocer, the baker, the druggist are all interested in products with quick turnover—not products that are shelf-conscious.

Cupples-Hesse Packaging Engineers will be glad to help you take your package from the shelf-conscious to the sale-conscious stage.

Write today, sending a sample of your present package and telling us the quantity you usually buy.

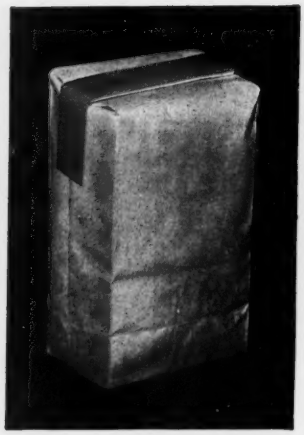
CUPPLES-HESSE *Envelope & Litho. Co.*

4169 N. KINGSHIGHWAY ~~~~ ST. LOUIS, MISSOURI

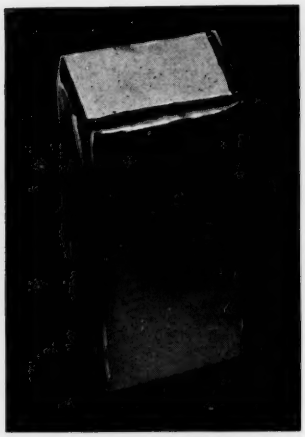
XUM



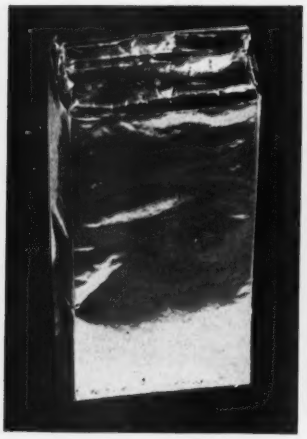
3. Sealtite closure.



4. Allison closure.



5. Square top or flat closure.



6. Hesser closure, foil bag.



7. Wire staple closure.



8. Tin-tie closure.

maximum packaging economy, as well as standardized effect, is possible only through the use of the equipment which in almost every case has been developed concurrently with the introduction of the seal, or later as a means of adapting it to modern production requirements.

The Allison closure: Seals contents with a triple fold which is further re-enforced by a strip of gummed tape. Folds are pressed firmly against contents while tape is rolled down bag sides. Good protection for product and easy stacking.

The Betner seal: Employs a tin tie strip which is attached in an exposed position to the bag top by a machine which completes the regular over and over fold and folds in a metal tie.

The Delta seal: Folds bag top to produce oblique overimposed folds and in manner which when cut according to instruction produces a pouring spout for contents. The top of the bag when sealed presents a flat surface well adapted for stacking.

The Sealtite closure: A simple and extremely practical over and over fold which produces a compact, flat topped package with excellent merchandising appeal. Adaptable for intuck or gusseted bags of either paper, cellophane or foil, a tight, sift-proof closure is claimed.

The Seal-Tie closure: A modified use of the metal strip here preserves the re-sealing advantages, but confines the use of this feature to the secondary closing of the bag. The primary seal consists of an over and over fold securely pasted flat against top. A compact package with good display value.



9. Deltaseal closure.



10. Metal clip closure.



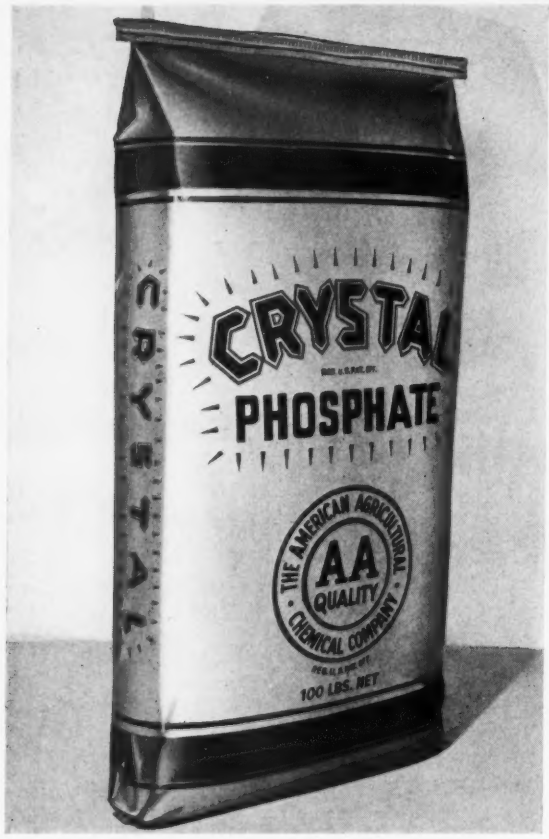
THOMAS M ROYAL & CO

5800 NORTH SEVENTH STREET

PHILADELPHIA U S A

BRANCHES: BOSTON CHICAGO SAN FRANCISCO ATLANTA BEAUMONT PITTSBURGH DENVER LOS ANGELES MINNEAPOLIS NEW YORK SEATTLE ST. LOUIS DAYTON BRYN MAWR DETROIT SYRACUSE

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11. Bagpak cushion stitch closure.

The square top or flat closure: (Also known as the Hesser), uses a card which is placed inside the bag in most cases. The bag top is folded down and sealed by gluing with a top label (not gummed) glued on in addition. This type may be varied in at least two ways. For easy sifting products like sugar, the gluing is done in a different way and sometimes the top label is left off. Then the outer wrapper is die-cut, folded, and glued top and bottom in a manner suggesting a band label which extends around the face of the bag.

The Tin-Tie closure: Supplements standard bag construction with a paper covered strip of metal which patented feature is licensed to various bag manufacturers on royalty basis. Offers excellent re-sealing advantages at some sacrifice of absolute protection of contents. Wide variation of finished package effects obtainable. Automatic machines have now been developed for applying this closure.

The Wire Staple: An economical and, in certain instances, an entirely acceptable closure for both paper and cellophane bags. Classified as tamper-proof, although offering little resistance to moisture.

The Bagpak cushion stitch closure: Used only on paper bags, especially of the multiwall type. This requires a machine to apply and, in combination with a machine sewed snake stitch, this closure is stronger than the walls of the bag.

Each type of seal illustrated and described has certain advantages which should be taken into careful consideration, not so much on the basis of general merit but rather from the standpoint of meeting the particular requirements presented by the product itself, the market it serves, competitive packaging and similar vital factors. Complete information is available to those interested.

Methods of Bag Closing

With the exception of the stapled bag—and this too may be closed by automatic instead of hand equipment—all of the closures shown require machine units for sealing. Such units for folding and sealing are usually integral with or included as a part of the weighing equipment customarily used.

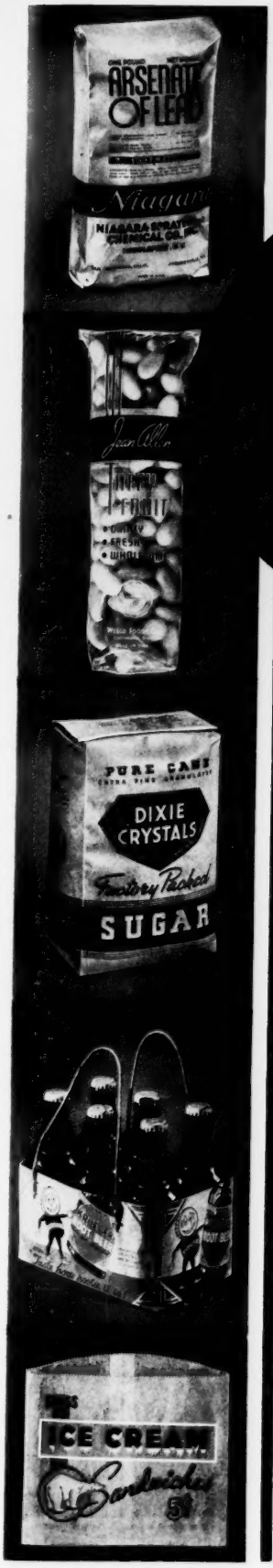
In the closing of the larger-size bags there is a definite advantage, providing of course that production conditions are equal, in machine versus hand-closing of bags. According to actual figures, obtained at one plant where both operations were used, the cost of machine sewing is approximately one-third that of hand sewing.

In general, the consideration of bag closures is of equal importance with that of the material from which the bags are made and their construction. It is essential, then, that manufacturers of bag closures and machines for forming them be freely consulted.

ENVELOPES AND PACKETS

Envelopes and packets are rightly considered as important packaging materials because: (1) there are many products which can only effectively and economically be packaged in them; and (2) special uses for certain products demand their use, such as the following:

1. Individual portions, such as hot-chocolate powder for soda fountain and restaurant service.
2. Small units—such as small parcels of seeds or certain drug products such as five aspirin tablets.
3. Small quantities of powdery substances which must be completely enclosed to prevent sifting.
4. Flat objects of light weight, such as hosiery, gloves, collars, embroideries, etc.
5. As a suitable container for a sample for general distribution, such as an anti-acid powder.
6. Furnished by a manufacturer, as a means of safeguarding the identity of his product all through the distribution process, to retailers who buy in



★ ★ ★ ★ ★

If it's a Paper Bag
UNION
makes it

★

Whether your particular product calls for a tiny cellophane package, an attractive shelf package, or a heavy-duty bulk package, Union has the manufacturing facilities to furnish it. What is more important, Union offers you the assistance of seventy years of experience in the successful solution of packaging problems. A staff of competent artists will help you develop a package design that will catch the buyer's eye and ring the cash register.

At your request, we shall study your particular packaging problem and offer our recommendations. No obligation, of course.

TRADE MARK UNION

Union Bag & Paper Corp.

WOOLWORTH BUILDING, NEW YORK

Paper Mills at: SAVANNAH, GA. HUDSON FALLS, N. Y.
Bag Factories at: HUDSON FALLS, N. Y. CHICAGO, ILL. LOS ANGELES, CAL. SAVANNAH, GA.



bulk or large unit packages, and dispense in small units to ultimate consumers.

In general usage the term "packet" applies particularly to envelopes or enclosures which contain flower and vegetable seeds, and are beautifully lithographed in color with true-to-type reproductions. All other flat type containers come under the general classification of *merchandise envelopes*.

In size they vary from the tiny $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. center seam envelope, used for two or three pills, up to the $6\frac{1}{2}$ in. by $9\frac{1}{2}$ in. or $7\frac{1}{2}$ in. by $10\frac{1}{2}$ in. general utility envelopes, accommodating one or more pairs of hose. There are practically no limitations as to styles of papers used in making them, as to color, finish, weight and texture, as well as whether they are transparent, semi-transparent or completely opaque. They may be had both in open end and open side styles, either with or without flaps, depending on the product to be packaged. And as to surface decoration they are capable of receiving any type of printing or lithography, in any color or combination.

A patented type of packet, known as the Sanitape Sealtite, has been developed by the Ivers-Lee Co. and has been used for a number of years for packaging pharmaceutical products such as vitamin capsules, aspirins, etc., as well as cocoa, coffee, face powder, etc. Paper, cellophane, rubber hydrochloride, metal foil and various other thermoplastic resin coated materials are utilized. The packaging material and the product are placed in an automatic machine which produces a complete packaged unit, containing one or more tablets or a measured quantity of granular or powdered material, heat sealed within a segment of cellophane or other sheet.

Another type, likewise patented, is the Sealtite Uni-Wrap which utilizes two opposed films of material, heat sealed completely around tablets, pills, capsules or similarly shaped products. It may be produced in lengths two units wide and up to as many as 14 units long. It is particularly applicable to products extremely sensitive to atmosphere changes such as effervescent and dehydrated compounds.

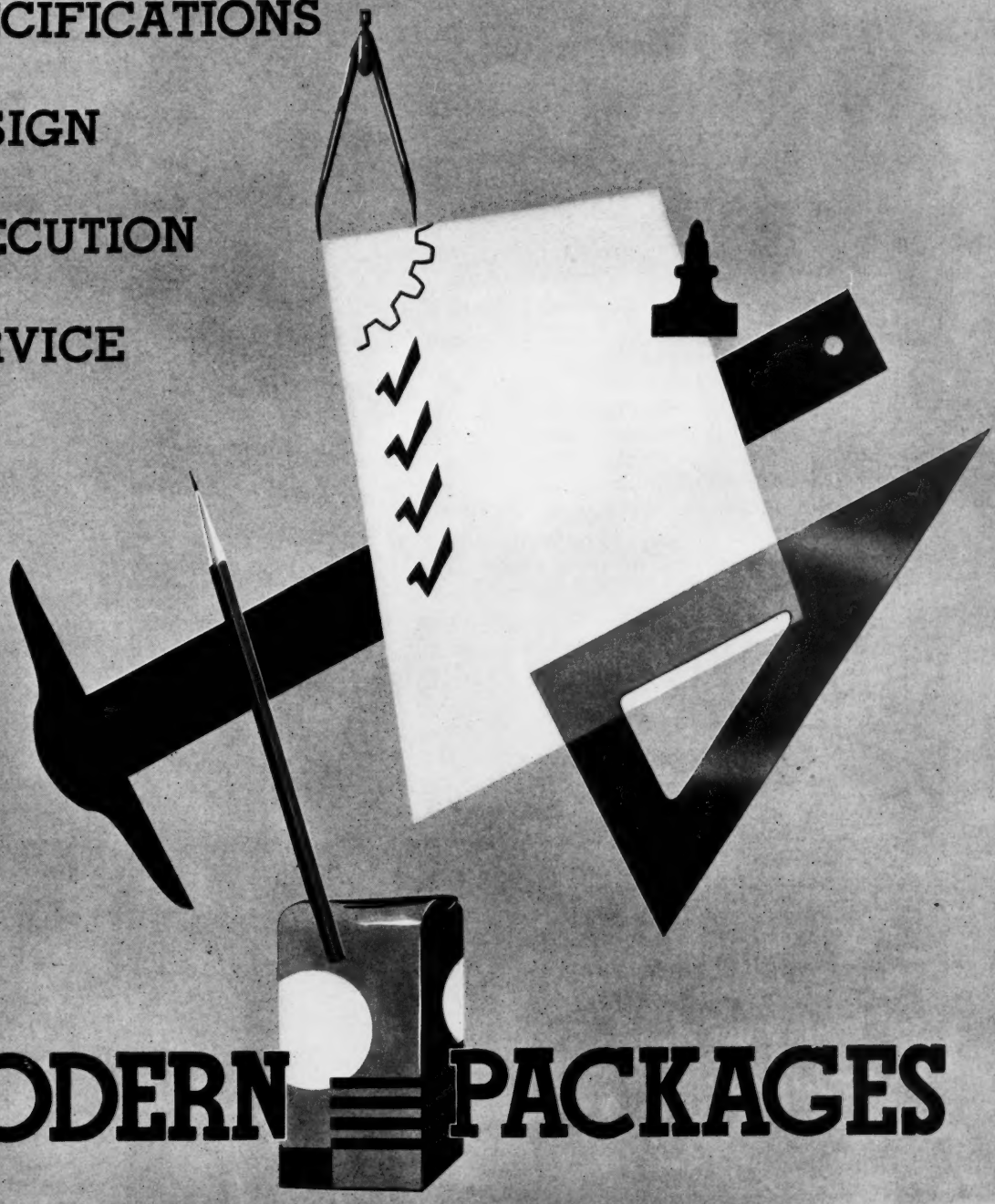
Both types are nicked for convenience in opening and thus a single dose or portion may be detached without reducing the protection afforded the remaining units.

A similar type of package is likewise available for powders, crystals and granules. The machines for producing these packages are installed in packaging plants



1. A group representative of the thousands of products effectively and economically marketed (in full or sample sizes) packaged in envelopes and packets. Note the variety of products shown and the varied design treatments.

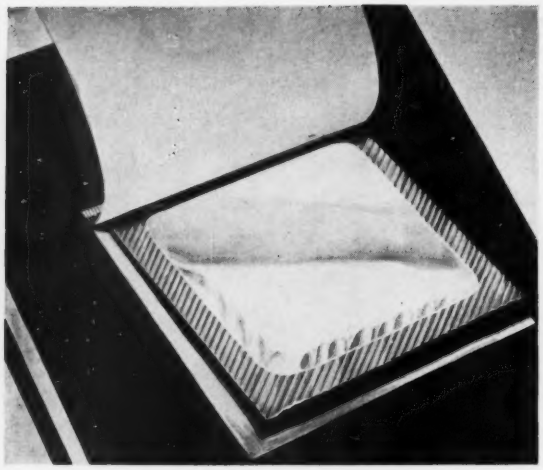
✓SPECIFICATIONS
✓DESIGN
✓EXECUTION
✓SERVICE



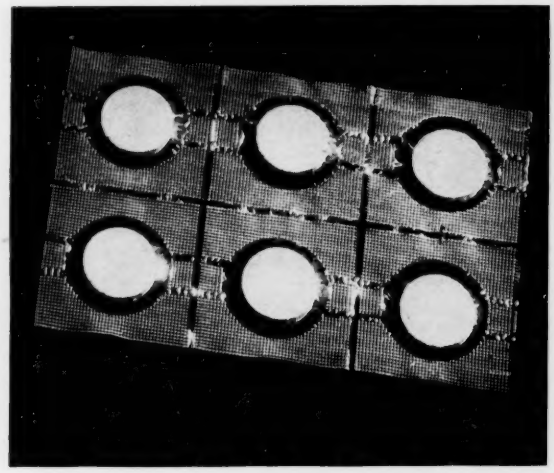
MODERN PACKAGES

Manufacturers of High Grade Bags

Benj C Betner Co
DEVON PA



2. Sanitape Sealtite unit powder package holding a portion of powder between two films of transparent material, heat sealed around all edges to form a sift-proof unit container. Photo courtesy Ivers-Lee Co.



3. Sealtite Uniwrap package providing individual protection in detachable sealed wrapping for each pill or tablet. The user may detach one unit at a time without reducing the protection of the rest. Photo courtesy Ivers-Lee Co.

when production is large enough to justify such installation. In many instances, it is found preferable to ship the product to the machine maker's contract packing department and then to re-ship either directly to consumers or distributors or back to the original source for packing into sales containers.

Several devices of both semi-automatic and automatic types are available for the production of packets of transparent cellulose or other heat sealing materials for candies, doughnuts and a host of other small items. These machines apply a longitudinal seam to the cellophane sheet, as it comes from the roll, to form a tube and then heat seal both ends of segments any desired length to form a complete sealed package. Various means are used to insert the product prior to the sealing of the second end of the container.

HEAVY DUTY MULTIWALL PAPER BAGS

by W. EDWARD SCOTT*

From casual observation, many think of the heavy duty multiwall "paper bag" as a container of doubtful strength, therefore of limited utility. Some brown "wrapping paper" is run into a machine, and presto!—there is a paper bag. But, as a matter of fact, there is more engineering in a heavy duty multiwall paper bag designed for the particular requirements of a given industry or commodity than there is in many apparently far more complicated devices.

In the first place, these bags are not made of "wrapping paper," but of a multiple number of sheets of specially made, strong kraft bag paper, the manufacture of which involves a high degree of chemical engineering skill, plus enormous equipment, elaborate controls and repeated tests at every stage to insure a kraft sheet that will meet every standard test of good bag paper.

Having the right paper, there comes the second process of developing the *right* bag, which again requires the same type of skilled, scientific engineering and research. A careful laboratory study must be made of the shipper's product, its characteristics developed, a survey made of the shipper's packaging operations, and finally pilot bags of varying specifications, tailored to the measure of the product, are constructed and subjected to rigid laboratory and shipping tests. These tests are carefully studied and charted. Defections are noted and corrected. The results are: 1. A bag which the shipper can depend on to transport his product safely. 2. A bag which will fit his packing equipment. 3. A bag which will meet the requirements of the common carriers.

Shipping Weights

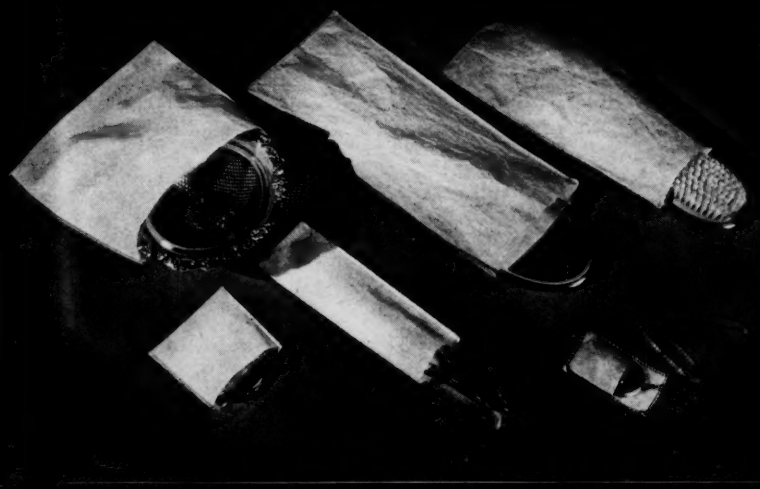
The principal shipping weight in these bags is 100 lbs. of commodity, although many shippers are finding this type of container to be ideally suited from both the economic as well as the utilitarian standpoint for units ranging in weight *to as low as 20 lbs.* and up to 140 lbs.

Bag Construction

Heavy duty multiwall paper bags are constructed of from three to six walls of kraft bag paper, depending upon the weight, density and physical characteristics of

* Bagpak, Inc.

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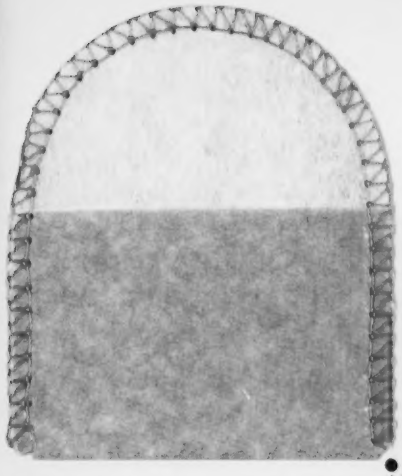
NON-TARNISHING COTTON-LINED OR KIMPAK-LINED PAPER BAGS for Vanities, Novelty Jewelry, Brush and Mirror Sets, Silverware, Metal Specialties, etc.



CLOTH CONTAINERS OF ALL KINDS—Flannel, Rayon, Silk, etc., for Vanities, Precision Instruments, Cigarette Cases, Lighters, Silverware, Watches, Pipes, etc.



LEATHERETTE CASES AND CONTAINERS for an infinite variety of products.



● One of many styles of non-tarnishing Cotton-lined Paper Bags.

SEWN
Containers

Sewn containers solve many a packaging problem.

COTTONLUXE designs and manufactures almost every type of Sewn Bags, Envelopes, or Cases—and is capable of solving *your* problem.

Whether your needs are in fabric, leatherette, or non-tarnishing cotton-lined paper or flannel containers, we are fully equipped and staffed for intelligent, speedy service.

Consult us freely. Write for samples.

Cottonluxe
Manufacturing Co.
593 East 137th St.
New York

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the product they are intended to carry. Each ply or wall of paper is properly arranged and fabricated in tubular form, one within the other, so that each bears its share of the burden. Greater flexibility and strength are obtained by using a multiple number of walls in relatively light basis weights, rather than a limited number of walls of heavier paper. For this reason the average heavy duty multiwall paper bag is constructed of a number of sheets ranging in basis weight from 40 lbs. to 70 lbs. each—the most frequently used paper being sheets in the 40-lb. and 50-lb. basis weights.

Moisture Protection

This is a major consideration when developing a bag for certain products. Kraft bag paper is, in itself, resistant to water and moisture to a considerable extent. These bags will shed water as contrasted with the absorbent action of the textile container. Therefore, the contents are safe if not exposed too long. Atmospheric moisture-vapor is another matter, however, as it will penetrate the tightest sheet of untreated paper. To guard against this, one or more walls of a number of different moisture-resistant sheets are incorporated in the bag construction, resulting in a highly moisture-resistant container.

Types of Multiwall Bags

There are two types of these containers in general use. These are the valve bag and the open mouth bag. The valve bag is factory-closed. That is, it has been closed at both top and bottom at the point of manufacture. The closure is made by either pasting or sewing. A small triangular opening called the "valve" is left open at an upper corner and the bag is filled in the shipper's plant by means of special packing machines which force the material into the bag under pressure. When filled, the internal pressure of the commodity forces a flap of the bag material across the opening, thereby effecting closure, and the bag is ready for shipment. This is a fine container for certain pulverized chemicals and foods.

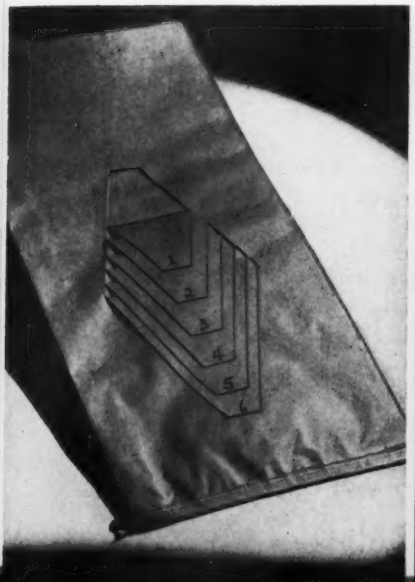
The open mouth bag is factory-closed at the bottom only, and, like the valve bag, the closure is made by either pasting or sewing. The top of the bag is left open, ready to receive its contents at the filling station in the shipper's plant.

Recent New Uses

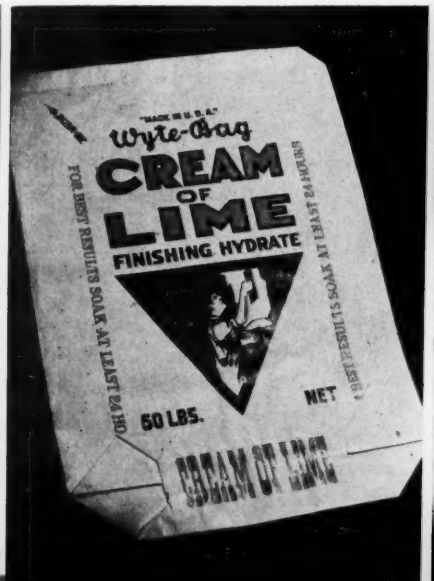
The heavy duty multiwall bag is used principally as a bulk shipping container for those commodities that are dry, powdered or granular in character and which can be mechanically flowed or spout-poured into the container. However, a new use for these bags was developed only last year that bids fair to expand enormously their field of usefulness. This new use is the packing of materials with post-hardening characteristics, such as rosin and asphalt, which are poured into the bag in a liquid state at astonishingly high temperatures, without damage to the bag. When cooling and subsequent hardening take place, the bag, in effect, is a tightly wrapped package. The advantages of this type of container for materials of this nature are as follows:

1. Ease of handling as compared with barrels.
2. Bags require less storage space both before and after filling.
3. Waste is eliminated—no loss from sifting or adherence to the package as the inner kraft paper liner peels off cleanly.
4. In the case of rosin, the paper bag weighs less than 1 lb. and contains 100 lbs. of rosin; the barrel weighs about 85 lbs. and holds approximately 400 lbs. of rosin. The tare weight of the paper bag is 1 per cent; the tare weight of the barrel is over 20 per cent. The use of the paper bag results in a 19 per cent saving in freight.
5. The paper bag can be stored outdoors in all kinds of weather for extended periods of time without harm to the bag or contents.
6. Bags when empty have a definite salvage value and find a ready market as waste paper at good prices.

Six-ply multiwall bag.



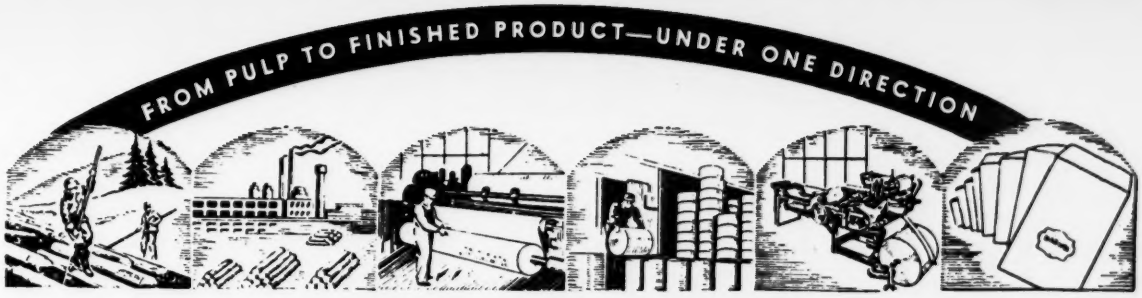
Pasted valve bag.



Sewn valve bag.



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EQUITABLE
Paper Bag
COMPANY, Inc.

ONE OF THE COUNTRY'S LARGEST MANUFACTURERS OF

Kraft Bags *Glassine Bags*
Heavy Duty Sacks *Mailing Envelopes*
and all other types of paper bags

Where quality counts: Equitable's control of every step from pulp-to-finished-product makes possible a uniformity of high quality not only in the bag itself but in the strength of paper, printing finish, etc. — all important factors to large users of paper bags.

Where price counts: Operating our own paper mill and all other phases of manufacture makes possible an economy which is reflected in Equitable's low prices.

Where service counts: Again Equitable's control of all steps avoids unnecessary purchasing delays and speeds up delivery. Shipments from both northern and southern plants save delivery time.

Where design counts: Equitable's art and research departments (a gratis service) cooperate to assure you a well-designed bag, efficiently suited to your particular needs.

EQUITABLE PAPER BAG COMPANY, INC.

Scholes, Meserole & Bogart St.
BROOKLYN, NEW YORK

Southern Plant and Paper Mill
ORANGE, TEXAS

TEXTILE BAGS

Textile bags, as the name implies, are made from woven fabrics of various kinds. There are four important types in common use.

1. **Cotton bags:** Many different styles of goods are used in making cotton bags, special constructions being designed to serve particular or unusual purposes.

Open-mesh cotton bags are widely used for shipping cabbages, onions, potatoes, oranges and many other vegetables and fruits. They provide an extremely compact form of shipment and permit full utilization of valuable space in refrigerator cars and storage warehouses. They permit examination of the product and provide for air circulation—a feature definitely desired in the case of certain fruit and vegetable items.

2. **Burlap bags:** Jute, from which burlap bags are made, is a product of India. Burlap goods are made in India for the most part, although limited quantities of European-made goods are available. Many different widths and weights of goods are used in making bags. The common widths of burlap run from 32 in. to 45 in., and the common weights from 7 oz. to 12 oz. Besides this, there are many special constructions designed for particular purposes. Burlap, being imported from India, necessitates an anticipation of supplies at least six months in advance. Burlap bags, because of their strength and low cost, are widely used for bulk products.



1. Open mesh fabric bags for fruits and vegetables.



2. Laminated (textile with paper linings) bags for powdered products.

A new form of textile tubing, designed as a protective wrap for rectangular and cylindrical shipments, has recently been developed. The tubing is made of burlap and designed to replace burlap piece goods as a wrapping. Hand sewing, such as required when ordinary burlap piece goods are used, is entirely eliminated, the tubing being fitted over the top of the package, fastened at the bottom with a wire tie, pulled up on the sides to take up the slack, fastened with a wire tie at the top and then cut from the roll just above the upper wire tie.

3. **Laminated bags:** These bags are made from either cotton or burlap goods and have a paper lining which is attached to the cloth by an adhesive. Any of the various constructions of goods used in making cotton and burlap bags may be employed in making laminated bags. The bags may have one or more plies of paper lining. The lining is attached by special adhesives. These adhesives may be of such characteristics as to make the bag waterproof or to give it some other quality which may be required. Laminated bags are used extensively as shipping containers for chemicals and food products.

4. **Paper-fabric bags:** These bags are a comparatively new development. They are made from strips of tough paper, spun into yarn, and woven into open-mesh cloth. Many brilliant colors of goods are available. Paper-fabric bags are used principally as containers for fresh fruits and vegetables.

Textile bags have certain characteristics which make them economical and practical containers.

Textile bags are light: They are thus easy to handle and labor costs and freight charges are correspondingly low. The tare weight of textile bags is frequently 80 per cent less than that of wooden containers. Freight savings may be 8 or 9 per cent more when bags are used.

Textile bags require little storage space: 500 bags, in a bale, occupy the space of one barrel.

Textile bags can be printed: Attractive multicolor brands can be printed on bags as well as formulas, instructions, and other information which may be necessary, thus stenciling and labeling with the involved labor cost, is eliminated.

Textile bags have good salvage value: The receiver of products packed in bags, either has uses for the empty bags himself, or if not, he can sell them at a good price as there is a steady demand for used bags.

Textile bags have two principal uses:

1. As shipping containers for bulk products. Food, agricultural, and industrial products, particularly those of a powdered or granular nature such as flour, salt, grain, seeds, feeds, fertilizers, cement, chemicals, are packed for shipment in bags.

2. As consumer packages. During recent years the use of consumer packages has been one of the outstanding developments in the retail merchandising field.

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SECTION FOUR

WRAPPINGS AND TIES

Pages 155 to 200

FANCY PAPERS

DISPLAY PAPERS

METAL FOIL

GLASSINE PAPER

WAXED PAPER

VEGETABLE PARCHMENT

TRANSPARENT WRAPPING SHEETING

PRINTED TRANSPARENT CELLULOSE

LAMINATED SHEETING

WINDOW-FACE WRAPS

TISSUE PAPERS

ANTI-TARNISH PAPERS

LEATHERETTE AND FABRIC MATERIALS

RIBBONS AND TIES

PACKAGE SEALING TAPES

SHREDDED PAPER

XUM

FANCY PAPERS

Fancy or box making papers include a wide group of uncoated, coated, metallic, foil and other types of papers designed for use primarily as box coverings, although also applied for other packaging purposes on occasion. While many types of these papers sprang originally from types developed as wall papers, the fancy paper industry has borrowed the best in the technique and tradition of many fields and has contributed many unique developments of its own as well. Thus, today, fancy box papers stand in a class by themselves and the industry which makes them represents a very specialized branch of the paper making and processing field, with a tradition, skill and technique of its own.

In the detailed descriptions and definitions which follow, the reader will find the answers to more specific questions that may arise regarding papers of these types. In general, it may be said that fancy papers provide a means whereby the box maker, the packager and the package designer may secure unusually varied effects in box decoration, at a relatively low cost.

Looking upon fancy papers as elements of design, it will be noted that their vast variety offers the designer an extended—if somewhat confusing—degree of leeway. He may select any one of dozens of textures, choosing those which will best achieve a desired effect or best establish a relationship between the product or the product's use and the package itself. His palette offers innumerable colors, fancy papers being available in practically every conceivable shade or combination of shades. As for design and pattern, he may select any one of literally thousands, ranging from simple one-color, undecorated papers to multi-color patterns, seasonal decorations, topical decorations, geometric designs, flower motifs, animal motifs, etc.

Private vs. Public Designs

Where his needs require and where quantities justify the expenditure, papers may be secured representing, in part or in whole, a completely private design. In some cases, stock papers may receive special private embossings which will thus differentiate them from all other embossed papers, although the base paper and the color may be of standard type. In other instances, every step of the fabrication of the paper, from the selection of raw stock, through coloring, printing or lithography and embossing, may represent an exclusive effort.

Paper costs vary within a very wide range. The cheapest grades of light-weight papers, designed for wrapping purposes and using an allover single color coating, may run as low as $4 or $5 a ream. The finest grades of domestic papers, such as some of the real wood veneers or some of the highly embossed, multi-color papers, may run as high as $30 or $40 a ream and papers may be secured at every price point imaginable between these two extremes.

The purchaser and paper user must simply remember the elements that go to make up paper costs. First among these, is, of course, the base paper. This may vary in quality, type and weight. Second is the number of processing steps to which the base paper will be subjected. Thus an ordinary coated stock will cost less than one which is coated and glazed or coated and embossed and these, in turn, will cost less than those which in addition are printed. Furthermore, the number of printing colors obviously will affect paper costs. An additional element affecting paper cost is that of popularity. Obviously, a stock paper which is very widely used, such as one of the conventional Christmas patterns, can be produced in longer runs and, hence, at lower costs than one of more limited appeal. There is a certain minimum run factor on all paper making machinery and orders below this point, on specially produced papers, will likewise cause costs to skyrocket.

Comparative Costs

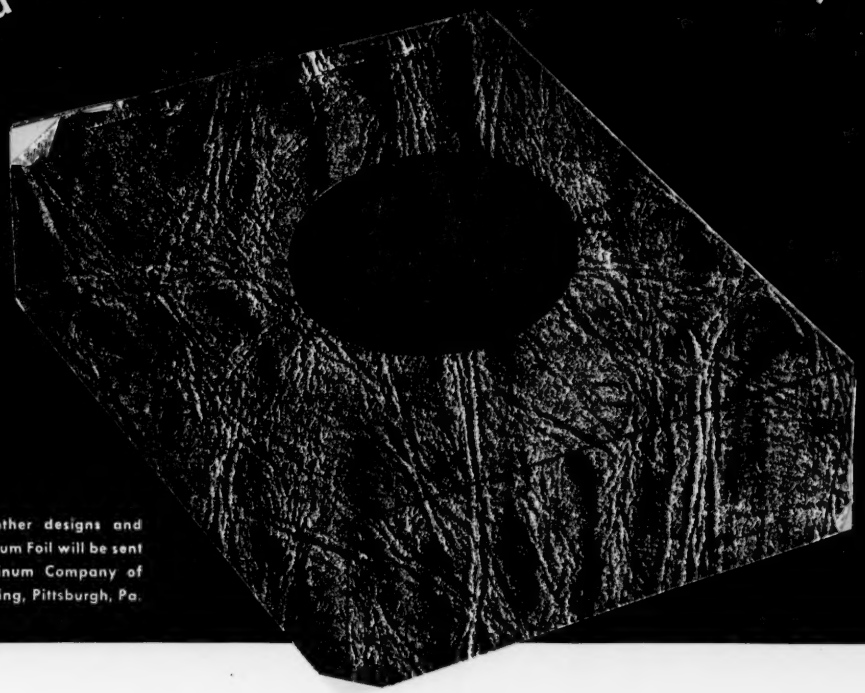
Any element of private design, either in paper decoration or in embossing, will likewise tend to raise costs because of plate and makeready charges. For this reason, private designs can seldom be utilized, except by firms having a substantial or continuous demand for a given type of paper sufficient to warrant the expenditure in private plates and embossing rolls and sufficient to justify the mill's carrying a stock of such papers or making a special run of them periodically. The minimum practical quantity for private design papers, in most cases, is at least 100 reams.

While decorative effects are the primary factors to be considered in choosing a box making paper, a number of other considerations are well worth checking. Samples of the proposed papers should be submitted to the box maker in every instance and should be tested by him to determine just how they will work on box making equipment of various types. The conditions of use of a box should be anticipated and where subjection to much handling or to exposure to strong light may be foreseen, the packager will do well to check on the ability of the paper to resist staining, scuffing and fading.

Sample boxes, made up in exact size and structure contemplated for the production run, will frequently disclose the advantages or disadvantages of any proposed paper. Patterns which seem to be of suitable size, tone or color when viewed in-the-flat, may be found less suitable than others when judged, as they will be judged by the consumer, on an assembled box.

As in the purchase of all other packaging materials, the most satisfactory results can be achieved if the supplier

what a difference aluminum foil makes



Samples of these and other designs and colorings in Alcoa Aluminum Foil will be sent on request. Write Aluminum Company of America, 2150 Gulf Building, Pittsburgh, Pa.

- **in appearance**

Package designs **sing** when you execute them on Aluminum Foil. Its vigor and vitality give a lift to overprinting. Beauty and distinction are achieved in a fresh alluring way.

- **in protection**

Freshness, flavor, and natural goodness are preserved by Aluminum Foil. A barrier to their enemies, to light, air, moisture and radiant heat, it is "friendly to food."

- **in "buy-appeal"**

Dressed in glistening Aluminum Foil, products beckon to buying eyes. They outshine, out-glamour their neighbors; get preferred positions in retail displays.

ALCOA

The full name is

ALCOA ALUMINUM FOIL

is given all details as to the manner of fabrication and the probable use to which a proposed paper will be put. While the artist, designer or package user should, of course, retain the right to specify or select designs and colors, he may well limit this right by properly utilizing the advice of box makers and paper suppliers on the more technical aspects of fancy paper purchase.

DEFINITIONS

The following definitions apply to the various types and kinds of glazed and fancy papers:

I. Uncoated Body Stocks

The kind of paper, such as rag, sulphite, kraft, and ground wood, which is coated, embossed, etc.

A. Antique, natural finish.
B. Super calendered.

II. Coated

A. *Mat Coated:* Clay coated with brushes or other means as it comes from coating machines.
B. *Brush Finished:* Coated papers whose surface is polished by brushes.
C. *Plate:* Coated papers which are smooth finished by cold rolls through pressure in a stack calendering machine.
D. *Friction Glazed:* Coated papers whose surface is polished by heated rolls in a friction calender, friction being produced by the faster rotary action of the steel polishing roll against the slower cotton roll.
E. *Mica:* Paper whose coating material consists of ground mica crystals which gives a sparkling finished appearance.
F. *Flint:* Coated papers whose surface is highly polished by rubbing across the sheet with flint stones, a very slow but effective process.
G. *Waterproof:* Papers coated and then top surfaced with waterproof material, i.e., casein or gums or coated once with color heavily sized or mixed with waterproofing gums.
H. *Metallics*
   (1) Gold, Platinum, and Tints. Casein and pyroxylin coated with ground bronze (gold), aluminum, and copper, with casein and other gums or with pyroxylin lacquer; generally stack calendered to produce smooth and brilliant appearance.
   (2) Silver Glazed—"silver coated"—paper coated with "Argentine," a lead pulp which is dull grey in color; then polished to a silver finish by a friction calender.
   (3) Pyroxlin coated with lacquers in bright, dull, and pearl effects.
   (4) Flock—paper coated with varnish on the surface of which is shaken or blown finely powdered cotton, wool, rayon, or silk commonly known as "Velours."

III. Half Fine Metallic

Papers are produced by laying patches about five inches square of a thin copper or aluminum alloy on paper which has been coated with an adhesive. The patches are allowed to overlap so as to form a continuous metallic surface and the overlapping edges are brushed to remove any surplus.

IV. Foil

Papers are produced by the application to paper of a continuous sheet of metallic foil, usually tin, aluminum, zinc, or their alloys. The foil is adhered to the paper by the use of adhesive.
A. Silver-bright polished on one side in the rolling process; dull on its reverse side.
B. Gold and all colors are obtained by coating with gums or lacquers—very bright if coated on bright side, and "satin" finished if coated on the dull side.

V. Fancy Papers

Papers decorated with one or more colors in mottled, speckled, streaked or blended effects, or in a definite design in any of several processes as for instance: Surface printing by Kidder, wall-paper, or other rotary-printing machines; intaglio printing; print or ink embossing; topping, i.e., application of bronze or color to the surface of the raised portion of an embossed paper; two-toned by means of friction or heat embossing; or marked by means of design rollers running against a wet surface either coated or printed.
A. *Surface Printed:* A rotary process in which oil ink is transferred to the paper from a relief-pattern roller.
B. *Kidder:* Oil-ink printing from curved plates locked on a roller form and registering each impression as the paper runs beneath.
C. *Wall-paper:* Water-color printing in one or more colors from relief-pattern rollers, one for each color, registered in the running to make the complete design.
D. *Aniline* stained or printed or both, with rubber rollers and relief-cut patterns—generally with alcohol-gum colors.
E. *Intaglio or Rotogravure:* Papers printed with an engraved copper roller which has the pattern engraved into the roller by the photogravure process or by the use of a pattern mill. The ink, which may be water color, aniline, oil or lacquer, is wiped off the roller by means of a thin blade set crossways of the roller and the amount of ink controlled by the angle of the blade and the depth of the engraving.
F. *Print Embossed:* See "Embossed" below.

VI. Embossed

Papers having a pattern effect obtained as follows:
A. *Regular:* By means of a steel pattern roller and

Consult

Williams

on your

BOX COVERING PAPERS

FLINT PAPERS
Over 100 Shades — Plain and Embossed

SATIN FINISHED PAPERS
Over Thirty Shades — Twenty Attractive Finishes

PRINTED PAPERS
FROM DELICATE PASTELS TO DEEP FLASHY COLORS
Plain — Embossed — Individualized Trademark Designs

CHARLES W. WILLIAMS & CO., Inc.

Authorities on Box Covering Papers

303 LAFAYETTE STREET
NEW YORK

524 So. Miller St.
CHICAGO

167 Oliver Street
BOSTON

A SUGGESTION

To the Manufacturer or Merchant to Utilize Every Factor to Stimulate His Sales.

It is important that the Paper Box in which your product is packed, has the appeal, and makes the impression on your ultimate customer to urge him to buy. Many of your consumer sales are first started through his eyes, when your package is on display.

This power to attract is greatly influenced by the **PAPER** used for dressing your box. An incorrect paper is a handicap to your sales. Results have shown increased sales by use of a Box Covering Paper of correct color and design, to appeal to certain groups depending on sex, age or station. If you sell a Woman's product, a feminine color, or exquisite pattern will help. Men prefer stronger colors and bolder designs. Young people are attracted by "snappy" colors. Children like juvenile characters.

"WILLIAMS" have studied and specialized in Box Covering Papers for half a century. Our line is thorough. There are hundreds of colors—Pastels—Strong—Bright—Metallic—Effects, that are festive and sparkling, or dignified and conservative. Appropriate colors and designs for the Seasonal Holidays when many of your products are bought for gifts —Valentine Day, Easter, Mother's Day, Halloween, Thanksgiving and Christmas, also for Bridge Favors and All-Year Gifts. Washable Finishes and Non-Fading Colors are also included.

Write **"WILLIAMS"** about your Box Covering Problem.
Benefit by their experience.

●

CHARLES W. WILLIAMS & CO., Inc.

Authorities on Box Covering Papers

303 LAFAYETTE STREET
NEW YORK

624 So. Miller St.
CHICAGO

167 Oliver Street
BOSTON

a paper-matrix roller mated together by wetting the paper roller—thus forming the embossing.

B. *Friction Embossed:* Paper embossed by pressing the pattern against a smooth paper roller run without gears, thus permitting a slight friction effect in the pattern contact—obtained with cold and with hot pattern rollers, the latter being bored and piped for steam heating. The combination of pressure and friction causes a deepening of color in the pattern area.

C. *Print Embossed:* A paper embossed and printed in one operation by means of the application of ink to the embossing pattern.

D. *Topped and Embossed:* Paper which is decorated in a two-toned effect by applying color through use of color roller to surface of the embossing.

E. *Spanished:* Decoration of an embossed paper by means of color applied to the entire surface of the sheet and then scraped off with a blade leaving it in the varied depth of the embossed surface; in varied tones of the decorating color.

VII. Cloth-Lined

Paper and cloth pasted and pressed together into a single sheet of material. Used for paper collars, envelopes, tags, children's books, etc.

DESCRIPTIVE TERMS

The following descriptive terms are commonly connected with box-papers, their sales use or qualities:

Embossing Designs

COMMON—Patterns in common use by many manufacturers of embossed paper. For instance: Skytogen and certain seal-grain moire, basket, Persian lamb, and swirl designs.

EXCLUSIVE—There are several hundred different embossing designs, in addition to the common ones, which have been originated or purchased by individual manufacturers who thereby own these designs exclusively. Such designs are frequently protected by registration at the United States Patent Office. Most manufacturers do not desire to copy others' designs, preferring to have exclusive designs of their own. The Glazed and Fancy Paper Manufacturers' Association, 902 Union Trust Bldg., Providence, R. I., maintains a registration bureau of these designs for the protection of its members and to answer inquiries from customers and users.

Fabric Designs—Printed designs in imitation of various fabrics, commonly known as "fabric prints." Embossing design in imitation of fabrics such as rep, linen, and similar materials.

Holly—Papers with a printed or embossed holly design in various combinations.

Leather Grain—Papers with leather grain designs which are either produced by embossing, ink embossing, or spanishing. Common examples are Alligator, Seal, Walrus, Caracul, etc.

Marble Agate—Papers with a design imitating polished colored marble. The design is sometimes a printed one but true marble agate papers are made by floating coloring materials in a viscous bath. Usually a small quantity of an extract made from ox liver is mixed with the colors in order to facilitate their distribution. The design is then created by combining the colors on the surface of this bath with a wooden comb or fingers. After the pattern has been made on this bath the floating materials are transferred to the paper by contact.

Moire—The name of a large class of embossing patterns which, after the manner of textiles of the same name, give a mottled or watered appearance.

Multi-color—Papers coated, printed, or originally made with many colors.

Non-fading—Papers that resist fading when exposed to sunlight. Some colors fade more than others.

Pearl—The well-known and very beautiful mother-of-pearl paper. The paper is coated by a special process with certain salts and then so treated that a crystallization process occurs which develops the mother-of-pearl design. This is a French manufacturer's product. American companies produce the same results with pyroxylin.

Ream—500 sheets is commonly used instead of the 480 which we learned in school. The standard size is 20 in. × 26 in. because these papers are most frequently sold in 26 in. rolls.

Rolls—A roll of plain paper usually contains three reams, but may contain less or more, depending on the weight or bulk of the paper reeled. A roll of embossed paper generally contains two reams; but if design is deep, one ream.

Silver—Papers coated with metallic substances which look like silver; sometimes called aluminum argentine, or platinum papers.

Swirl—Designs, both printed and embossed, which consist largely of circular lines or motifs.

Tarnishing—Discoloration of metallic papers caused by chemical action from contact or vapors.

Tissues, fancy—Tissue paper upon which has been printed a fancy design. Frequently it is embossed with another design. Largely used for gift wrapping.

Trade-mark Designs—Trade-marks printed or embossed upon the paper.

Weight—The weight per ream on a basis of 500 sheets listed in various sizes.

Wood Grain—Printed papers with designs imitating various wood grains.

Considerable delay is caused by customers sending in an order for a certain number of reams of a certain color. Such an order does not state what size ream they desire, what kind of paper is wanted for a body stock, or what kind of finish is needed. Orders for paper should state the quantity; whether in rolls or sheets; size of rolls or sheets; manufacturer's sample number if possible; otherwise full details regarding the color, finish and body stock required.

XUM

DISPLAY PAPERS

Many firms, who are always on the alert for improvements in display technique, have become very much interested in the possibilities of display backgrounds which are more than mere decorations—backgrounds that carry still further the spirit of the advertising message represented by the lithographed or printed paper or the wood or metal window display.

Ever since the development of crepe paper as a decorating material, the importance of the window background has been recognized. Not only has crepe paper been used to form an attractive setting for lithography, but it has added the strong appeal of color to the display. Another undoubted reason for its popularity is the fact that by decorating the entire window, the overall size of the display as an advertisement is greatly increased. People can see it farther and, by skillful use of crepe paper decorations, the design is made to lead the eye to the display and to the merchandise on display. Crepe papers are widely utilized because of the ease with which they may be handled, their relatively low cost, and the wide range of colors and varieties in which they may be had. The use of crepe paper in conjunction with lithographed or printed displays provides an unusual degree of flexibility and makes it extremely easy for the window-trimmer to adjust his display to fit various sizes and types of windows.



1



2

1. A lithographed window display set against a panoramic background of big city buildings. **2.** Crepe papers are the traditional—and still often used—background display material. Photos courtesy Dennison Manufacturing Co.

As an inexpensive, colorful and versatile decorating material, crepe paper is widely utilized, but there are a lot of other papers which are favored—plain or embossed metal foil, imitation leathers, papers bearing photographic reproductions of textiles, wood grains and other textured surfaces and some types of fancy box papers where the design lends itself for use in display.

A number of new decorating materials and processes have been developed which open up entirely new fields for the designer of displays who considers the entire window his unit of design. Efforts to make the window background carry out the central theme of the lithographed or printed display are not new. Backgrounds in warm or cool colors, to harmonize or to contrast with warm or cool colors in the display, have been used very effectively. Such an item as crepe icicles has frequently been utilized for the same purpose and entire scenic effects have been built up, although the latter have not always been considered completely practical from an installation standpoint.

With the new materials and processes which are now available, however, an entire new field of decoration has been opened up and the technique of complete advertising tie-up has taken another step forward. Among the new processes is an inexpensive printing process which can print a single design up to 7 ft. long and over 3 ft. wide.

This is a continuous-roll process and since the design need repeat only every 7 feet, it is possible to use it in longer lengths and to get a complete panoramic effect across the background of even the widest window. The 7-ft. repeat is so long that the fact that the design repeats at all is not obvious from anything but searching study. The material printed may be either a very heavy weight and almost opaque crepe paper, or this same material may be furnished with a flexible corrugated backing which greatly increases its adaptability to window treatment and makes possible structural effects.

Since the reproduction is of the poster type, printed backgrounds produced by this process do not compete with the lithography for attention, but, rather, serve to complement it and to offer a pleasing contrast with it. A particularly effective application of this form of background is a printed scene representing the general at-

GRACE YOUR PACKAGE WITH

RIBBONETTE

Tie your package with eye appeal. Dress your wrap, closure, box or bottle with gay colors in handsome, strong cotton Ribbonette.

A few of our standard patterns are illustrated. Thousands of designs and color combinations are possible. There is *no limit* to what *can* be done with Ribbonette, made to your own order.

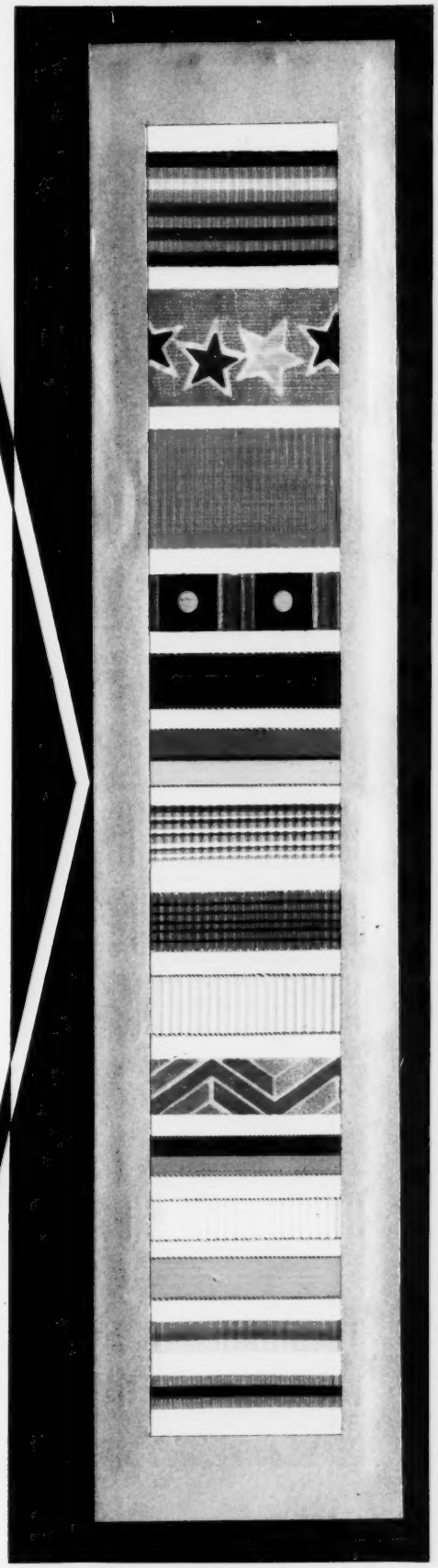
Our Art Department will gladly submit to you specially designed private patterns for your unusual needs. Or prepare an advertising pattern embodying your name and message.

Send us one or more of your packages. We'll be glad to dress them in appropriate Ribbonette.

CHICAGO PRINTED STRING CO.

2319 Logan Blvd.
Chicago, Ill.

55 West 42nd St.
New York, N. Y.



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3



4

3. A panoramic display paper built into an effective window unit with a few hand-made props. Photo courtesy Nalco, Inc. **4.** Silk screened corrugated display board is here supported by bent wires set within the corrugations. Photo courtesy The Capex Co.

mosphere or situation in which the product on display would be used, with the lithography representing a close-up of the product in actual use.

Panoramic papers, utilizing color reproductions of either drawings or photographs, have been very effectively used within the last year and the number of these papers available has greatly increased. They are usually made in two- or three-color effects, in rolls about 4 feet in height and 25 feet in length, and are supplied in various thicknesses of stock.

The flexible corrugated decorating materials have likewise become exceedingly popular over a period embracing most of the last decade, but it is only recently that they have been available in a wide variety of new surface treatments. The material is now being used "wrong side out," as it were. That is, the corrugated side of the material instead of being the face, is the reverse and new types of decorative papers and printed effects now form the surface, with the material keeping all the flexibility and structural advantages which have long been recognized. Thus the corrugated decorating material is now available in very realistic imitations of marble, wood and cork and in the popular metallics as well as solid colors. The senovelty finishes, in particular, are especially useful to the designer who wants to carry the advertising tie-up beyond the lithography itself and into the background decoration.

For the convenience of those who build their own displays, one manufacturer, at least, provides a corrugated paper with outline letters and numerals backing to permit of easy use of the material in forming signs, slogans, price tags and similar display units.

Because of the structural advantages of the corrugated backing material, they may be made into pedestals for supporting merchandise which also tie up with the general advertising theme. One type utilizes an unusual wire-stiffening method to hold the sheets erect, when bent into three-dimensional effects, without the use of frames or easels. Pedestals of imitation wood, for example, might be used in a floor wax display or as a tie-up with a tool display. Pedestals of marble fit in well with the very luxurious effects sometimes used to show cosmetics and even pedestals designed to look like birch stumps have been used in connection with a lithographed card in which birch trees were part of the design.

Corrugated display backgrounds, when supplied in conjunction with lithographed or printed displays, have a definite advantage in ease of packing in shipment since they may be rolled into a relatively compact form without damage to the display. The corrugated materials are frequently used in conjunction with stenciling and air-brush work, particularly where the quantity required is comparatively small and where the size of the display would make plate-cost for printing and lithography prohibitive.

In addition to these specialty papers on the corrugated backing, there are a number of new and beautiful finishes which may either be draped or used to cover flat surfaces. Outstanding among them is a sparkling material, the surface of which is composed of fine particles of mica and which is particularly spectacular under artificial light—either white or colored. This material suggests coldness so well that it has been used with particular effectiveness in a wide variety of displays in which the cooling idea is dominant. Displays featuring refrigerators, soft drinks, summer clothing and even vacation travels, are among those to which the material has been effectively applied.

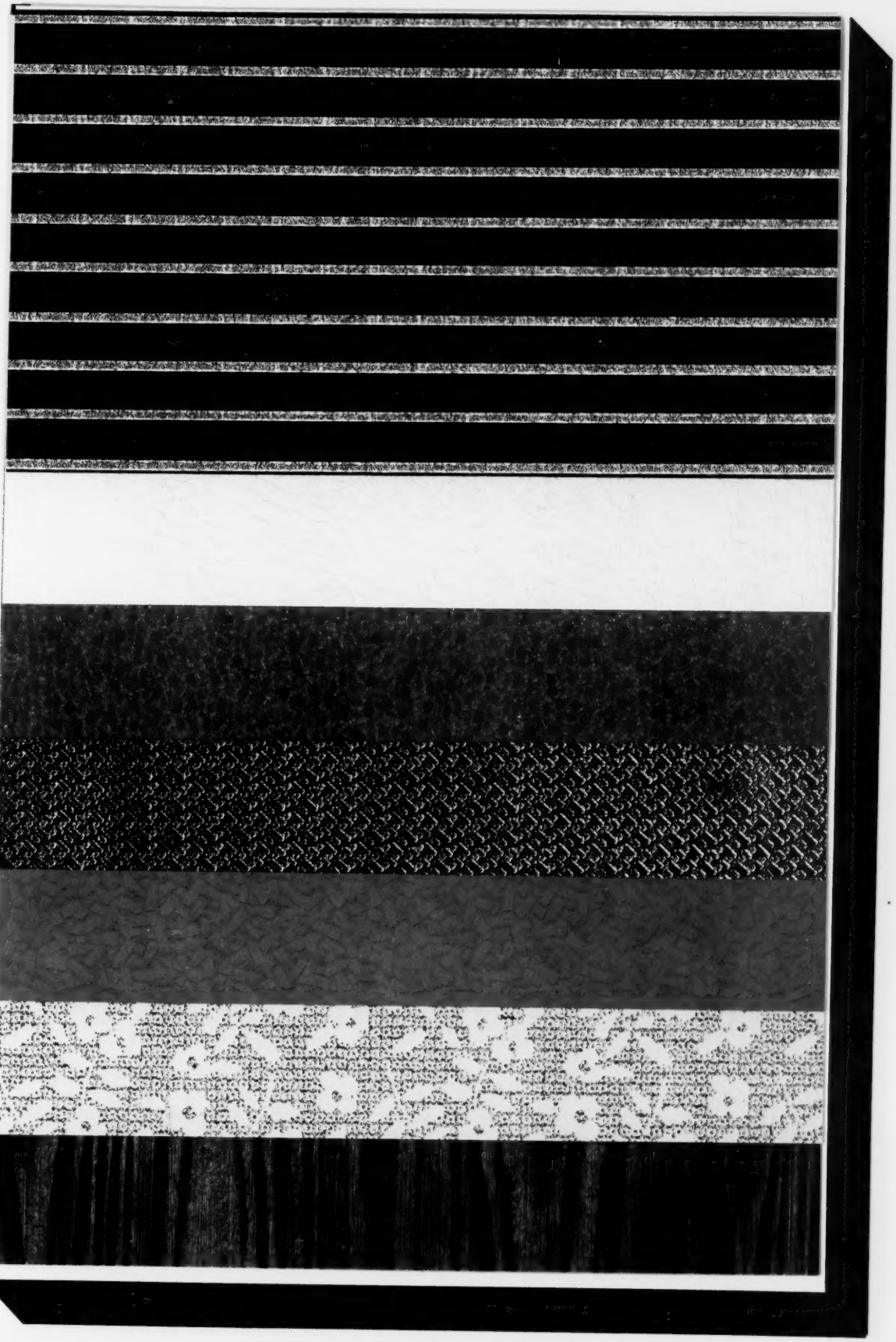
These new decorating materials, in the aggregate, form a very useful kit of tools for the designer of displays who has watched the evolution of the tie-up between copy idea and illustration to the highly developed state in which it appears today. The ingenuity of the designer seems now to be the only limit to the possibilities of the display background as a part of the complete advertising theme. Today he need no longer rely upon makeshift materials or tedious hand-made decorations.


-for distinctive packaging papers
MARVELLUM

COLOR this year as always, takes first place in any question of packaging for greater sales appeal. But this year the official colors of two great World's Fairs command special attention, from coast to coast. The new Marvellum colors have been carefully keyed to these official colors. The **DESIGN** of the papers has also received special attention; and a range of entirely original designs has been developed in tune with the style-demands of 1939. In addition to these important factors, Marvellum offers **EMBOSSING** in many patterns to provide a truly unlimited scope of possibilities for a distinguished, striking and up-to-date package for your products

THE MARVELLUM COMPANY

Papers of Distinction HOLYOKE, MASSACHUSETTS



Royal Blue Tiling
No. 98523

Marco Levant
No. 871 Ivory

Confetti Rayon
No. 89032 Scarlet

Twill Silray
No. 870

Driftwood Embrite
No. 97971 Emerald

Arbutus Silvergloss
No. 904 Lt. Green

Wood Panel
No. 903 Chocolate

XUM

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CHARLES F. HEAPHY COMPANY, New York, N. Y.

HOLYOKE COATED & PRINTED PAPER CO., New York, N. Y.

HUGHES & HOFFMAN, New York, N. Y.

BRADNER SMITH & CO., Chicago, Ill., and Milwaukee, Wis.

A. HARTUNG & CO., Philadelphia, Pa.

MATTHIAS PAPER CORP., Philadelphia, Pa.

CHOPE-STEVENS PAPER CO., Detroit, Mich.

BLAKE, MOFFITT & TOWNE, Pacific Coast

ZELLERBACH PAPER CO., Pacific Coast

JOHN LESLIE PAPER CO., Minneapolis, Minn.

NASSAU PAPER CO., St. Paul, Minn.

THE QUEEN CITY PAPER CO., Cincinnati, Ohio

ROACH PAPER CO., Little Rock, Ark.

E. H. WILKINSON & CO., LTD., Toronto, Canada

AMERICAN PAPER EXPORTS, INC., Export Agents, New York, N.Y.

B. J. BALL, LTD., Adelaide, Brisbane, Melbourne, Perth and Sydney, Australia; Auckland, New Zealand

XUM

METAL FOIL

Metal foil, as the name implies, consists of thin metallic layers of aluminum or other metals. It is available in sheets, rolls or fabricated forms, unbacked or backed to various types and weights of papers; plain, embossed, unprinted or printed in one or more colors.

Metal foils combine a number of unique protective features. Their opacity and their ability to resist the passage of heat has induced their wide use in the packaging of products easily susceptible to moisture, such as potato chips, peanuts, etc. Heat reflection has also served as one of the reasons inducing the use of metal foil for the wrapping of chocolates and similar products.

Metal foil has a high resistance to moisture vapor passage and is therefore utilized frequently, both when it is desired to keep moisture inside the package and when it is sought to prevent the entrance of moisture into the package. Thus such items as cake mixes, tenderized prunes and dry milk powder are frequently found in packages constructed, in whole or part, of metal foils.

Much progress has been made, in recent years, in the development of various combinations of foils with other materials such as waxed papers, glassines, grease-proof krafts, bonds, manilas and cellulose sheetings. These linings serve to reinforce the metal foil and facilitate its fabrication into wrappers, liners, cartons, etc.

Metal foil bags lined with glassine, bond, grease-proof or kraft papers have come into increasing use for such items as potato chips, peanuts, coffee, etc.

Metal foil wrappers having a heat-seal lacquer coating which enables them to be securely sealed or applied in the form of a tight wrap are also widely used.

Foil-mounted cardboards have come into more extensive use with the development of processes for the printing of metal foils in full color and fine design. For general use, foil is ordinarily mounted to a white double sulphite-lined newsboard. Single- or double-manila-lined newsboard is also widely used, but for some purposes is not desirable because of its color.

Much progress has been made in printing on metal foils, especially in the use of gravure printing and color photography reproductions.

THE COMMON USES AND GRADES OF FOIL

Commodity	Backing	Adhesive
Box covers	Soft paper	Solid glue
Chocolate bars	No backing	....
Chewing gum	Waxed paper	Wax
Candy bars	Waxed paper	Wax
Candy mints	None (plain foil)	....
Cartons	Paper board	Glue
Tea	With and without paper	....
Cakes	Waxed paper	Wax
Cheese	Plain or transparent paper backed	If paper-backed, wax or cement
Yeast	None (plain foil)	....
Ice-cream bars	Waxed paper	Wax
Cut tobacco	Waxed paper	Wax
Cigarettes	Bond paper	Glue lined
Box liners	Plain or paper-backed	If paper-backed, glue lined
Soap	Waxed paper	Wax
Photo films	Waxed paper	Wax
Corsage stems	None (plain foil)	....
Bottlenecks	Tissue paper, if any	Cement, if tissue paper-backed
Bottlecap liners	Plain or paper backed	If paper-backed, colorless cement
Window decoration	Plain or paper backed	Glue
Butter wrappers	Paper	Cement
Meat wrappers	Waxed paper	Wax
Gift wrappers	Bond paper	Colorless cement
Typewriter ribbons	Wax paper	Wax
Bonbon cups	None (plain foil)	....
Labels	Bond paper	Colorless cement
Vanity boxes	None (plain foil)	....
Milk-bottle caps	None (plain foil)	....
Frozen-food packages	Bond paper	Asphalt
Chocolate buds	None (plain foil)	....
Insert for transparent wrapper	Wax paper	Wax
Liners or covering for paper cans	Plain or paper backed	If paper-backed, cement





Left: Metal foil tight wrap, solid glue mounted to board paper. **Above:** Bag type foil inner lining for moisture protection. Photos courtesy Reynolds Metals Co., Inc.

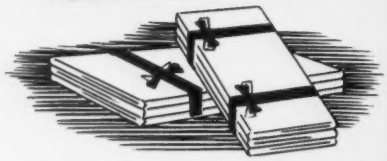
XUM

F.C.C. Ribbons and Cords

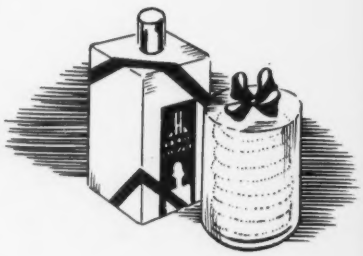
Reg. Trade Mark

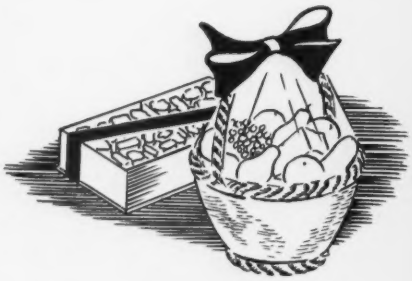
MADE OF Cellophane TRADE MARK

THE DUPONT CELLULOSE FILM
LICENSED UNDER PATENT NO. 1,406,148











Each year hundreds of new uses for F.C.C. ribbons and cords are found in all kinds of industries. These sparkling and beautiful ties are being used more and more . . . to add attractiveness to a wide variety of products . . . to achieve distinction and sales success for new products . . . to facilitate the opening of packages.

Your product is different, of course. But the chances are that F.C.C. ribbons or cords, made of "Cellophane," can give your product an added appeal, lift it from the ordinary, and make it a real sales winner.

Perhaps the examples cited here will suggest a use with your products.

DRY GOODS — Brilliantly colorful "Cellophane" ribbons accentuate the whiteness of handkerchiefs, towels, sheets, etc. The full range of ribbon colors also makes possible many pleasing harmonies or contrasts when used as ties for colored textiles.

FOODS — The gay, sparkling "Cellophane" colors on hams, bacon, poultry, pastry boxes, cakes, etc., impart a festive air, a feeling of good living. F.C.C. ribbons and cords stay bright and clean.

COSMETICS AND PERFUMES — Gay bows of F.C.C. ribbons and cords, made of "Cellophane," add a decidedly feminine appeal to perfumes, lotions, nail polishes, and other cosmetics and drugs. They are used also as decorative closure breakers.

FRUITS AND CANDIES — Confection and fruit packages, graced with sparkling "Cellophane" bows, rosettes, ribbons or cords, connote cleanliness and freshness.

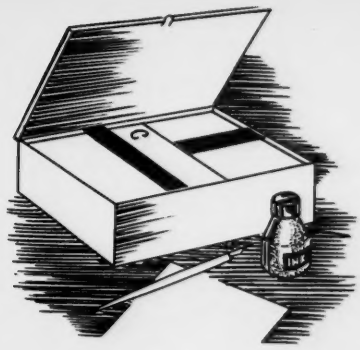
TOBACCOS — On tobacco packages, pull tabs insure freshness and ease of opening . . . at low cost. Among the latest uses for F.C.C. ribbons and cords are "inside lifts" in cigar boxes; pouch purse strings; temporary holiday decorations; and ties for combination offers.

XUM

STATIONERY — Smooth, yet strong, F.C.C. ribbons tie paper, envelopes, blotters, scratch pads into secure packs . . . and provide an eye-compelling color note necessary for counter sold merchandise.

LIQUORS — F.C.C. ribbons and cords in masculine colors add much to any liquor packaging. Sparkling golden, red or blue seal breaks and decorations hint richly of the liquor within. Tiny statuettes, stoppers, or booklets can be tied securely to bottle necks by short lengths of gay F.C.C. ribbons and cords of "Cellophane."

RETAILERS — Sparkling F.C.C. ribbons and cords of "Cellophane" add a happy gift air to every day, as well as holiday, purchases. The cost is so little that leading shops and department stores use F.C.C. brilliantly hued cords for all box ties. Salesclerks find them quicker to tie because of their smoothness, strength, and tight-knotting quality.







F.C.C. Ribbon, made of "Cellophane," comes in widths ranging from 1/12" to 10". F.C.C. Cord made with "Cellophane" is available in various gauges from a thread to a rope. All ribbons are greaseproof and dirtproof. Special moistureproof ribbons or cords may be made for any purpose.

F.C.C. Two Tone Ribbon: Plain or Decorated, is made in fourteen sparkling colors, and may be had, opaque or transparent, in a galaxy of everyday or holiday patterns. They are sturdy, inexpensive, and eye-catching.

F.C.C. Duplex Ribbon: Heavy duty "Cellophane" ribbon of surpassing strength, durability and richness.

F.C.C. Threaded Ribbon: A doubly reinforced "Cellophane" ribbon, available in the full range of sparkling effects.

F.C.C. Metal Sheen Ribbon: A three-fold "Cellophane" ribbon available in fourteen brilliant opaque colors, iridescent and lustrous.

F.C.C. Cord: Sparkling, soft and durable. A specially treated core assures greater pliability and greater strength to F.C.C. Cord. Available in sixteen solid and two-toned brilliant colors.

made of
Cellophane
TRADE MARK
THE DUPONT CELLULOSE FILM
LICENSED UNDER PATENT NO. 1,406,148

SEND FOR SAMPLES

FIBRE *Cord* **COMPANY Inc.**
MANUFACTURERS
755 East 134th Street
New York, N. Y.

XUM

GLASSINE PAPER

by FLLOYD TRIGGS*

Inasmuch as the average glassine mill and waxing plant produces well over 100 varying grades of paper, it is simpler to treat glassine from the standpoint of general use. These grades range from highly transparent, lacquered glassine outer wraps to an opaque white sheet made for lamination to board and for label use on food or other products containing grease. In addition to these standard grades—waxed, lacquered, embossed, colored, printed and plain—there are a host of special types, many of them made to fit the specific packaging requirements of just one manufacturer. The latter's reason for selecting either a special or standard glassine may be due to a desire for some form of protection, for economy, for decoration, for production efficiency, or for any combination of these advantages.

From the angle of general use, all these papers fall in four broad groups: outer wraps, carton liners, bag stocks and industrial specialties. Though varying greatly in appearance, the glassines found in each group possess the common characteristics of high grease-resistance, cleanliness and moderate cost. When waxed or lacquered, all glassines become decidedly moisture-proof and self-sealing through the application of heat. In addition, special adhesives have recently made it possible to glue waxed glassine in either bag or carton wrap without the necessity of providing a dry strip for this purpose.

In the first division—outer glassine wraps—a high degree of transparency is usually found. The papers in this group are known in the trade as "Super-transparent Bleached Glassines." They are designed to work rapidly on packaging machinery, to print with facility on ordinary presses, and to provide a neat, tight seal with ordinary adhesives. As a carton wrap, this group of glassines offers approximately 90 per cent of full transparency. When waxed it becomes highly moisture-proof, self-sealing, and the transparency is still further increased. Waxed transparent glassine has found an extensive market in the baking industry and elsewhere to a somewhat lesser degree, as a change from waxed sulphite and other

* Advertising Manager, Riegel Paper Corp.



1. The remarkable diversity of applications of glassine paper may be seen by an examination of this photograph. Note the variety of package forms and of package groupings into which the packages here shown fall. Photo courtesy Riegel Paper Corp.

And Now...

PRACTICAL PRE-TIED BOWS!

OF "CELLOPHANE" . . . "PLIOFILM"* . . . OR WOVEN RIBBON

Now at last you may use PRE-TIED BOWS on your package.

PRE-TIED BOWS bring all the luxurious and elaborate effects of hand tying . . . at a fraction of the cost.

Here is how: "BO-SEALS," the first type, are pre-tied bows with gum seal on the back. They come *without* streamers.

We supply the "BO-SEALS." You simply moisten the back and place in position. That is all. Simple as a postage stamp. Use them as gay closure seals by themselves, or apply them on your regular ribbon. Either way, "BO-SEALS" are both lovely and cost-saving.

"STREAMER BOWS," the second type, come *with* streamers. They are pre-tied bows on ribbon of any length (made to order). To apply, glue the ends of the streamers. Thus there are no expensive bow-tying operations in your plant. And ribbon is saved because tying all-around is eliminated.

Choose your own exquisite effect. We, at Stark Bros., can achieve it in any kind of ribbon. Your package will be lovelier, with more sales pull than ever before.

Send us samples of your packages. We'll be glad to apply appropriate PRE-TIED BOWS and send you cost-saving information.

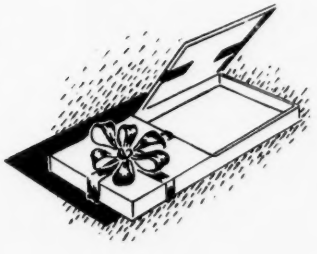
* U. S. Registered Trade Mark of The Goodyear Tire & Rubber Co.

"BO-SEALS" are pre-tied bows with gum seal on back for applying by moistening seal. U. S. Patent No. 2,104,248.

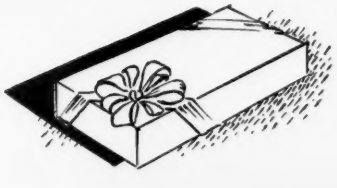




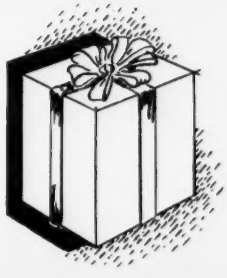
"STREAMER BOWS" are pre-tied bows made with streamers of any length (made to order). To apply, glue down ends of streamers.



AS A LID DECORATION . . .
Use "STREAMER BOWS." Instead of tying ribbon all around, just glue the ends under lid. Much time and material are saved.



TO SEAL AN OVERWRAP . . .
Use "BO-SEALS." One or two will do the trick . . . and add plenty to sales appeal.



TO TIE A BOX . . .
Use "STREAMER BOWS." Just tie around package and seal or glue streamer ends. Bows can be in any position. Save much time and ribbon.

STARK BROS. RIBBON CO.

352 FOURTH AVENUE NEW YORK CITY



2. Lacquered glassine used as an inner bag for cartoned cheese pop corn. The bag is heat sealed. Photo courtesy The Menasha Products Co.

waxed papers having lower moisture protection and less resistance to handling.

From the standpoint of volume and variety of grades, the second division—carton-lining glassine—is of greatest importance. In this group are found both bleached and unbleached glassines, the latter tending toward a light gray or an amber color. While transparency is of little importance, grease- and air-resistance are kept at a high point and the moisture-proof quality of the waxed liners is particularly developed. Many manufacturers have found it economical to have special glassine liners developed to meet the specific needs of their product or to provide maximum efficiency on their lining machines. Aside from these individually produced glassines, the unbleached grades find general use in cracker cartons, coffee bags, and in lamination with boxboard. The bleached liners are used for cereal, prepared flour, cocoanut, gelatin, candy, and an endless number of other products requiring a sift-proof, sanitary, grease- or moisture-proof (if waxed) liner of low cost. A recent development in this field has been the increased use of such liners laminated to the boxboard before the carton is formed.

In the bag and envelope industries two general types of bleached glassine are prevalent. These are known as "Super-transparent Bleached Glassine" and as "Regular Bleached Glassine." In the manufacture of bag glassines, special attention is given to strength and pliability, while transparency varies with the cost of the grade used. The baking industry is perhaps the largest user of glassine bags but the number of other products so packaged—potato chips, grated cheese, collars, novelties, etc.—is legion. Present-day bag machinery has kept pace with the rapid developments of the lining and wrapping machine manufacturers and many types of glassine bags can now be made at a speed of 700 per minute. Bag glassines are made to print well with both oil and aniline inks, and the printing of these bags is normally a part of the manufacturing process. By a process of waxing on one side with a dry strip for gluing, a moisture-proof bag is produced, although special glues may be used to eliminate the dry strip if desired. Two light-weight glassines, laminated together with wax, form a special bag-paper used where exceptional moisture-protection is of definite advantage in the preservation of the contained product.

The fourth division—industrial glassines—must be adapted to cover a multitude of little known but widely used special papers. Ball bearings are wrapped in a special heavy-weight amber glassine, chemical packaging requires many technical qualities and other grades are used in electrical condensers, photo engraving, etc.

Glassine papers have found application in the frozen food industry, in a number of cases. For instance, a specially plasticized and laminated glassine (heat seal, lacquer coated), is widely used for corn on the cob.

Many of the papers mentioned above are prepared in special colors and with embossed or printed designs. The colored glassines make economical and attractive candy cups, and pads of colored corrugated glassine have reduced breakage and added to the appearance of many packages. In commenting on these special industrial glassines, mention should be made of lacquer-coated glassine of high shine and perfect transparency. Several papers of this type are now made and finding rapidly increasing usage not only for industrial purposes, but for bags, carton wraps, tobacco, baked goods, etc. The best lacquer-coated glassines are highly transparent, odorless, heat-sealing, glossy, moisture-proof, grease-proof and readily printable.

It is obviously difficult to treat with such a complex group of papers in a few paragraphs. The glassine mills, however, are located at central points throughout the country and employ large laboratory research staffs, the services of which are available without charge to package designers or manufacturers. With the modern glassines available today, it is no longer necessary to adapt your package, product or machinery to fit the packaging material for the latter can be adapted to fit your specific needs—a simpler and more economical production procedure.

Thinking Package?

THINK **PAPER** FIRST!

IF our present Specialty and Converting Papers do not exactly fill your needs, all our research laboratory and development facilities are at your disposal to develop the base stock best suited to your purpose.

Thus developed, or already available, our extensive production facilities assure prompt delivery and satisfactory costs.

Fitchburg Paper Company

Founded 1861

Sales Offices: 250 Park Avenue, New York City

Mills: Fitchburg, Massachusetts

PRINTING PAPERS AND SPECIALTIES

Fitchburg Finish

FITCHBURG PAPER CO
FITCHBURG
MASS

Fitchburg Finish PRINTING PAPERS AND SPECIALTIES

Printed on No. 10 Pyrox, using Master Print Pattern, courtesy Charles W. Williams and Company, Inc., New York City

Fitchburg Finish PRINTING PAPERS AND SPECIALTIES

Thinking Converting?

HERE ARE A FEW OF SEVERAL POSSIBILITIES!

ALKALI PROOF PAPERS For soap, chemicals, dyes, etc., or wherever an alkali condition exists.	**BOX WRAP** Including Snowhite Stiktite, an exclusive Fitchburg development.	**GUMMING** With the strength and surface qualities for your particular needs.
BAG PAPERS For coffee, flour or any product that requires special qualities.	**COATING BASE STOCK** For flint, friction and plate finishes. Special grades for greeting card, printing and embossing.	**LACQUERING PAPERS** With a surface specially adapted to lacquer application.
BOARD LINING Board Lining and Combining Papers, both free and groundwood, for board mills and box makers.	**FOIL MOUNTING PAPERS** Developed after years of research.	**PYROXYLIN PAPERS** High super finishes to secure best results with minimum of coating solution.

Fitchburg Paper Company

Founded 1861

Sales Offices: 250 Park Avenue, New York City

Mills: Fitchburg, Massachusetts

PRINTING PAPERS AND SPECIALTIES

Fitchburg Finish

FITCHBURG PAPER CO. FITCHBURG MASS

Printed on No. 10 Pyrox, using Master Print Pattern,
courtesy Charles W. Williams and Company, Inc., New York City

QUESTION · If you were a buyer of paper, would you buy KVP paper? If so, *why?*

INTERVIEWS WITH KVP EMPLOYEES

...sure...they're prejudiced.

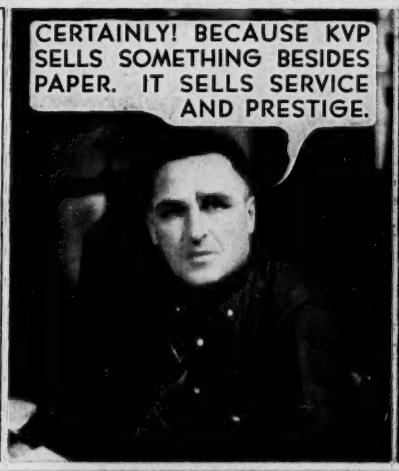
...but so are close to 10,000 regular customers.

...anyway, these are mighty interesting reasons.

KVP FOOD PROTECTION PAPERS

KALAMAZOO VEGETABLE PARCHMENT COMPANY

PARCHMENT · KALAMAZOO · MICHIGAN



Ed Marantette, Shipping Dep't



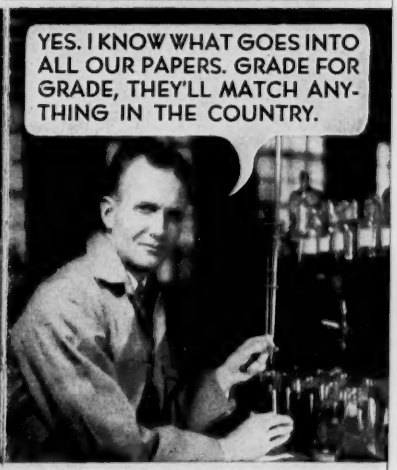
Bob Black, Waxed Dep't



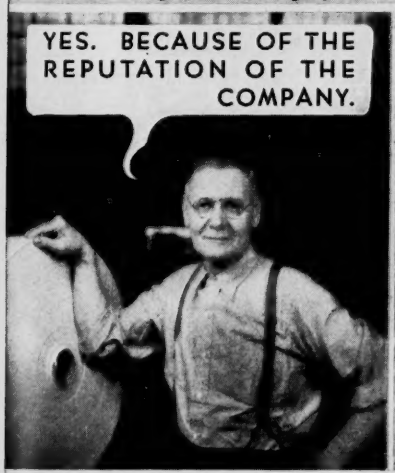
Gladys Borgman, Stenographer



W. G. Turner, Salesman



Reginald Hurst, Chemist



Robert Stewart, Sup't Paper Mill No. 2



Ray White, Finishing Room



Harold DeWeerd, Secretary



1. Waxed stock used to keep naphtha content of the soap chips intact and to assure tight sealing.



2. Wax coated paper used for bread wraps. Photo courtesy Nashua Gummed and Coated Paper Co.

WAXED PAPER

In the early stages of the manufacture of waxed paper a quantity of unsized or slightly sized paper was placed in a pile and a little wax shavings laid on the topmost sheet. With a hot iron the wax was melted which penetrated the top and second sheets. Then again wax was liquefied in a pan and sheets of paper drawn through it. When larger quantities were in demand, paper in roll form was run through an iron trough containing melted wax, kept in liquid form by gas or oil burners. Mounted in the tank was a glass roll, under which the paper ran; as the paper emerged from the tank, it was run over a steel scraper, then through two squeeze rolls to remove all surplus wax. Then the paper was allowed to loosely fold on itself a short distance away and after several hours was ready to cut into sheets or wind into a roll.

From the very simple beginning described, waxed paper has developed into a complicated product so that the character of the base papers and the kind of wax used are selected very carefully and scientifically to meet the exact requirements of the product to be packaged. When automatic machines for wrapping were first introduced, papers had to be made to meet the machine requirement; for instance, the first kiss wrapping machine found no paper with sufficient twisting strength in a reasonable weight that wrapped without a very big waste through torn wrappers. As other machines for wrapping various products were invented, intensive laboratory work developed papers to fully meet the requirements demanded.

In addition to paper requirements there was the proper wax content to consider and the best method of application to meet the many different needs. The reasons for the extraordinary growth of waxed paper are its attractive appearance, excellent color, high gloss, waterproofness and resistance to water vapor.

Types of Waxed Paper

In common use we speak of waxed paper in three classes, although there are many sub-divisions of the three classes. For practical consideration these may be classified as follows:

Dry Waxed Sulphite: Impregnated with paraffine of a relatively low melting point. Carries little or no surface wax and is dry to the touch. Not entirely proof against water, vapor, and air. Such a wrapper is a protection against contamination by handling or contact and, to a moderate degree, against changes in moisture content. Is not self-sealing on application of heat. Its use is indicated in many special instances.

Semi-Dry Waxed: Here the wax is driven into the fibres of the sheet and there is also a slight surface coating. Often used in delicatessen, meat, and grocery shops and in industries not related to foods.



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RIEGEL PACKAGING PAPERS

The use of Riegel Papers by leading manufacturers in many fields is the best evidence of their quality, adaptability and economy. With over 130 different varieties, they offer the widest selection of packaging materials available from any one source today. Among them you can find just the right paper for any packaging need, able to give you maximum production efficiency and all necessary technical requirements, at a moderate cost. Write for information on the samples shown, on your present papers, or any packaging problem you may have. Without obligation, we shall furnish unbiased advice based on experience and research work in many fields.

THIS SWATCH CONTAINS A FEW OF OUR 130 PACKAGING PAPERS



A FEW USES for samples shown

COATED VEGETABLE PARCHMENT: Frozen Foods, Silex Coffee, Ground Meat.

DIAFANE: Cake and Bread, Donuts, Caramels, Potato Chips, Tobacco, Candy.

RIEGELINE: Bread and Cake, Bottle Wrap, Liners, Bags—when waxed — RIEGELITE.

OPAQUE GLASSINE: Tea, Candy Bars, Greaseproof Food Labels, Carton Liners.

LAMINATED GLASSINE: Candy, Potato Chips, Tobacco, Shredded Cocoanut, Peanuts.

GREASEPROOF: Lard, Meat, Candy, Bags, Carton Liners, Printed Wraps, Cookies.

WAXED AMBER: Moisture-proof and greaseproof liners of many types.

WAXED GLASSINE: Cereals, Prepared Flours, Crackers, Baked Goods, Soap.

A FEW USERS of samples shown

Birdseye Frosted Foods, Standard Brands, Durr Packing Company.

Doughnut Corp., P. Lorillard Co., Ward Baking Co., United Drug Co., Sweets Co.

Tasty Baking Co., A. Angonoa, Inc., First National Stores.

Standard Brands Inc., Charms Company, Continental Baking Co.

Planters Nut & Choc. Co., P. Lorillard Co., Hershey Chocolate Corp.

Beech-Nut Packing Co., Hershey Choc. Corp., Oval Wood Dish Co., First National Stores.

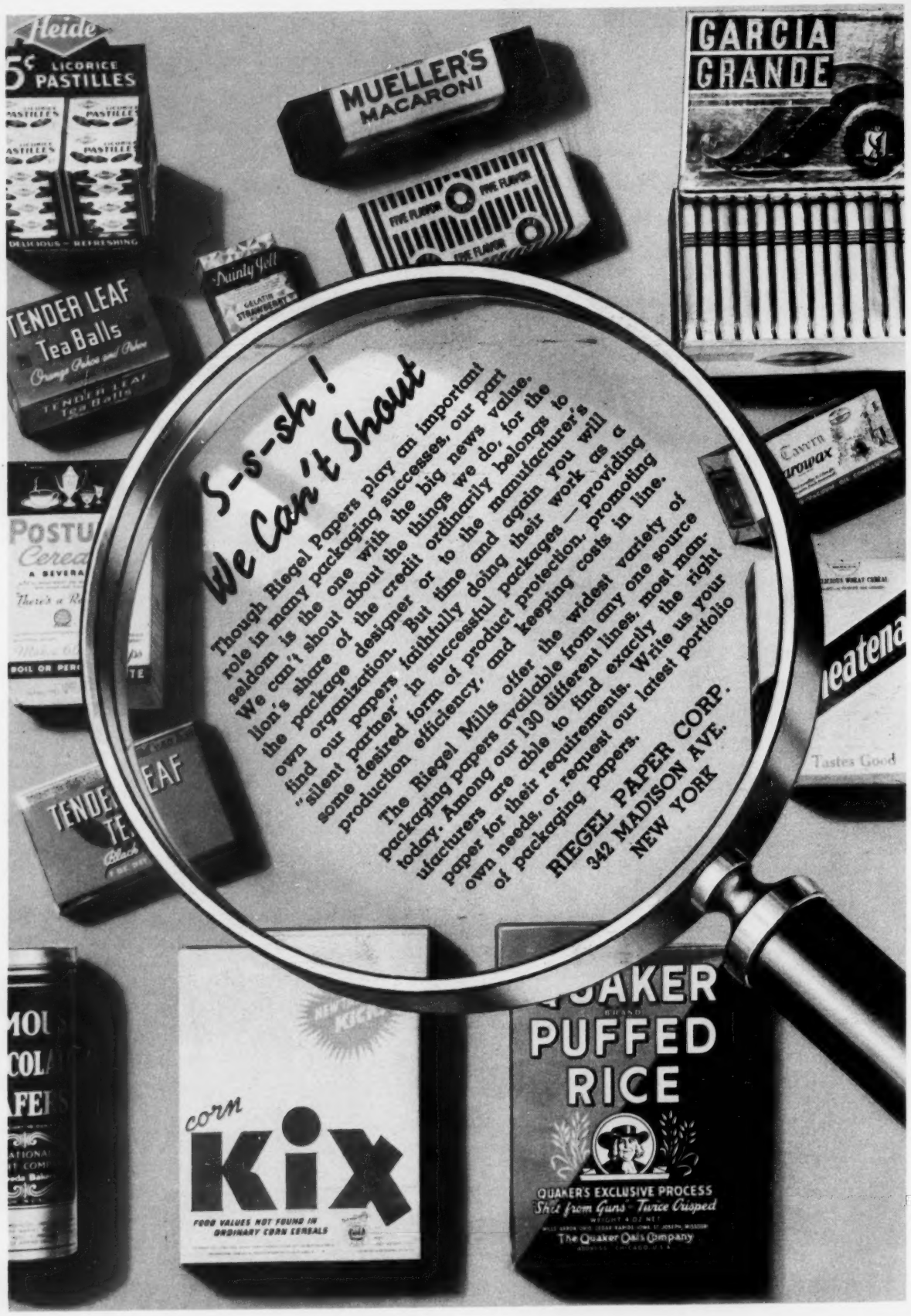
National Biscuit Co., Federal Sweets & Wafer Co., Henry Heide, Inc., General Motors.

Kellogg Co., General Foods, Drake Bakeries, Quaker Oats Co., General Mills.

Printed on Riegel's Mother-of-Pearl Crystalline, Grey, a fancy lint covering, mounted on Riegel's Tuxedo.

RIEGEL PAPER CORPORATION

342 MADISON AVENUE, NEW YORK


Heide
5¢ LICORICE PASTILLES
MUELLER'S MACARONI
GARCIA GRANDE
TENDER LEAF Tea Balls
S-s-sh! We Can't Shout
Though Riegel Papers play an important role in many packaging successes, our part is the one with the big news value. We can't shout about the things we do, for the seldom lion's share of the credit ordinarily belongs to the package designer or to the manufacturer's own organization. But time and again you will find our papers faithfully doing their work as a "silent partner" in successful packages — providing some desired form of product protection, promoting production efficiency, and keeping costs in line.
The Riegel Mills offer the widest variety of packaging papers available from any one source today. Among our 130 different lines, most manufacturers are able to find exactly the right paper for their requirements. Write us your own needs, or request our latest portfolio of packaging papers.
RIEGEL PAPER CORP.
342 MADISON AVE.
NEW YORK
corn Kix
FOOD VALUES NOT FOUND IN ORDINARY CORN CEREALS
QUAKER PUFFED RICE
QUAKER'S EXCLUSIVE PROCESS
Shot from Guns - Twice Crisped
The Quaker Oats Company

Wet Waxed Sulphate or Self-Sealing: A heavier coating of paraffine with correspondingly greater resistance to the passage of air and of water vapor. It is self-sealing on application of heat. Used as a wrapper for many products, but especially useful as a liner or divider.

Waxed Glassine: Is lightly and also heavily coated with paraffine, usually of high melting point and like waxed sulphite is odor-proof, insect-proof, etc. Waxed glassine is also made in an endless variety of grades and weights and serves various purposes.

Bread Wrappers

Waxed paper completely changed the bread industry, because it was found bread sealed in waxed paper could be baked in central bakeries and distributed *oven fresh* throughout large areas. Not that any wax paper would allow this, but the proper weight base stock and the correct amount of wax coating allowed the bread to breathe—for yeast in bread does not entirely stop acting after the bread is baked. In good bread there is a secondary yeast action which results in giving off certain gases and moisture content which, if confined, hastens the formation of mold and chemical reactions.

Waxed paper that allows bread to breathe is of great value; it duplicates nature, in that it has the properties of the natural outer coverings of some fruits. While it is possible to make a waxed paper resistant to moisture, the fact that paper can be waxed to allow moisture to pass through is a highly valuable property.

Waxed paper has been exceptionally valuable in the baking industry; it is also equally valuable in the confectionery, soap, florist, tobacco, medical, and many other lines of manufactured products.

With the introduction of electric refrigeration, which is a dry cold, wax paper is more and more used to prevent loss of moisture due to the cold dry temperature of electric refrigeration. Electric refrigeration, in conjunction with waxed paper, gives nearly perfect preservation; also preventing flavor contamination from foods in the ice chest and excluding all injurious atmospheric and other influences.

Frozen Food Wrappings

Waxed papers have come into extensive use in the rapidly growing frozen food industry where special types of waxed paper particularly suited to sub-zero sealing have been developed. The qualities desired under these circumstances include maximum moisture vapor transmission resistance, flexibility at low temperatures and maximum heat seal strength. Many coatings are compounds of waxes with either synthetic resins or rubbers.

Opaque Waxed Papers

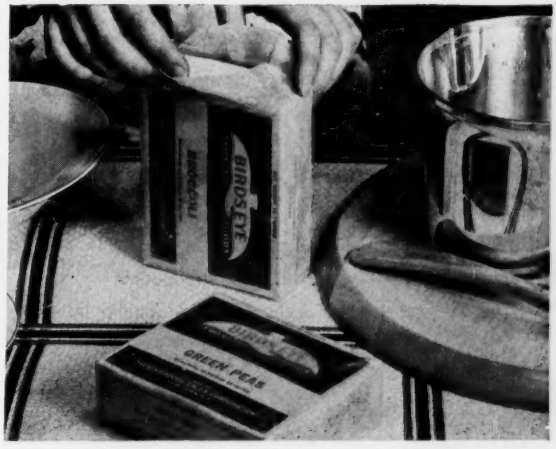
The development of opaque waxed paper is the most important progression that has occurred in recent years and it deserves attention from all who package. Opaqueness has enhanced the advertising value of waxed paper and especially is this true when the paper has been coated with colored pigments and then waxed. Such papers have a definite purity of hue and brightness, and offer a brilliant contrast to printed matter on the wrap.

Research has shown that opaque waxed papers, which immediately became popular through their superior appearance, are effective in retarding harmful changes in many products accruing from light rays. In other words, opaque waxed paper is penetrated less by light rays than ordinary waxed paper or a white transparent paper and that colored opaque waxed papers are considerably superior to white opaque waxed papers.

Just as colored glass bottles are a protection from light rays, opaque waxed papers, especially if colored, advantageously replace ordinary waxed papers or transparent materials in packaging products that may turn rancid, lose flavor or color, or otherwise be affected by exposure to light. Waxed paper is also made transparent, when it is desirable that the printed matter on the container be clearly visible.



3. Four typical printed waxed wraps used over blank cartons. Photo courtesy Kalamazoo Vegetable Parchment Co.



4. Specially prepared wax coated paper used on frosted food packs. Courtesy The Menasha Products Co.

A development that reduces cost in carton packaging and at the same time retaining or excluding moisture to suit the product is becoming extensively used. Formerly cartons were purchased printed, then product filled, and the carton wrapped in waxed paper and hot sealed—fusing the waxed surfaces together. Today a plain unprinted carton is used: the waxed paper is printed in a continuous roll, then a hard, glossy coat of wax is applied on the printed side. When the waxed paper is used for wrapping the filled carton, each wrapper is automatically cut off from roll and accurately registered by an electric eye device. As the wrapper is cut, it is fed over a glue roll that applies a thin even coat of the adhesive to the unwaxed surface. This method gives the finished package a smooth, glossy appearance, sift-proof and insect-proof, and at lower cost per carton.

VEGETABLE PARCHMENT

by GLENN STEWART*

One of the most important of all food protection papers is genuine vegetable parchment. It is also one of the most interesting, for it is the only paper that will not go to pieces when wet. Since it is equally insoluble in grease, fat, oil, brine and even weak acids, it is obviously indispensable to industries with moisture and grease protection problems.

The first question a stranger to the paper business asks of a vegetable parchment manufacturer is apt to be, "What kind of vegetables do you use to make it?" This requires information on the origin of its name. Like so many other new things, when first discovered, it was found to look like something else—in this case, the specially tanned skins of sheep and goats, known for centuries as "parchment." Obviously, this belonged to the "animal kingdom." The new product was made from paper, itself made from flax or cotton or wood, all from the "vegetable kingdom." So it became "vegetable parchment" and the word "genuine" was later prefixed.

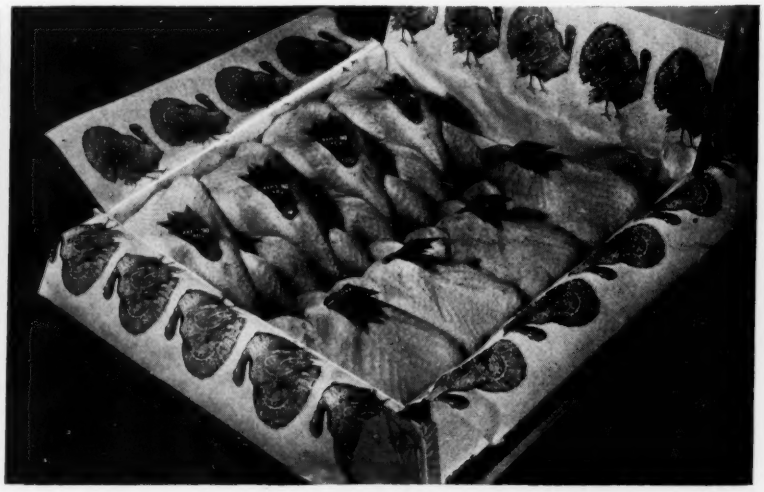
The quickest and best test of vegetable parchment is to soak it in water. It immediately becomes so soft and pliant as to appear even stronger wet than dry. The water may be cold or boiling. It will not destroy the sheet or cause it to go to pieces.

Among the many uses of vegetable parchment, both printed and plain, are:

Meat-packers: Fresh meats, such as pork loins, beef tenderloins, pork sausage, etc., need protective wrappings that will not disintegrate in contact with the meat juices. Genuine vegetable parchment is "stronger wet than dry," is not completely air-proof, and is the ideal wrapper for these products. Smoked meats and cooked hams are wrapped in genuine vegetable parchment, not only because it is snowy white in color, but because it is grease-resistant. Being soft, pliable, and strong, parchment does a "better job of wrapping." Lard and shortenings in cartons or boxes are protected in genuine vegetable parchment to avoid grease leaking through the container. It folds without breaking at the corners and is highly satisfactory as a wrapping material, as evidenced by the fact of its having been used for years for these products.

* Kalamazoo Vegetable Parchment Co.



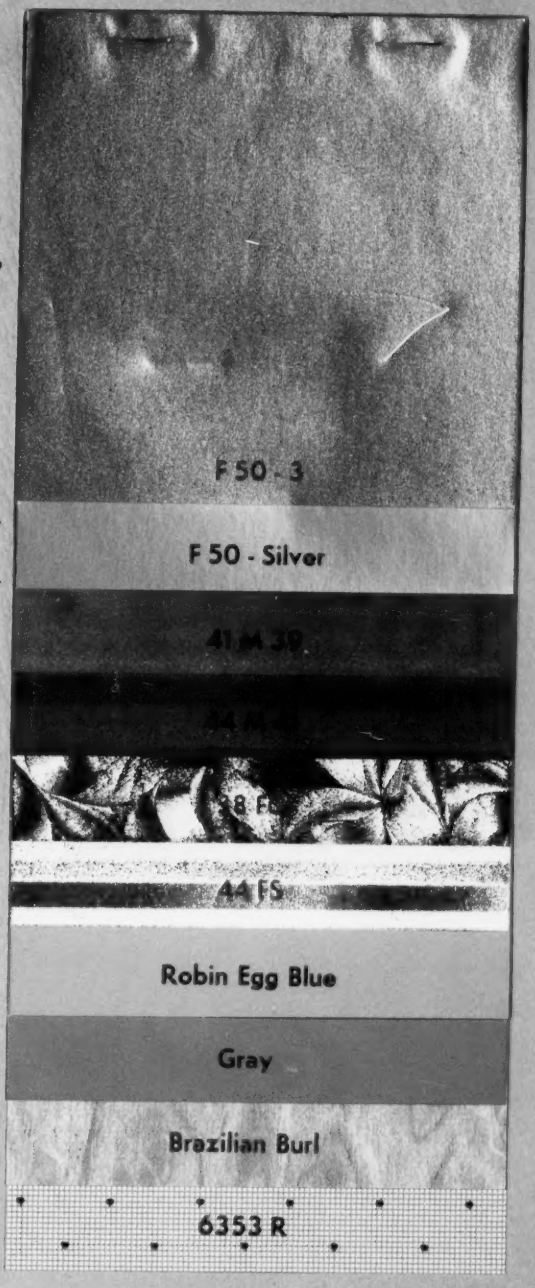


1. Genuine vegetable parchment wrappers for cheese. Photo courtesy of Kalamazoo Vegetable Parchment Co. **2.** Box liners of printed parchment are not only attractive but protective—insoluble and grease-proof. Photo courtesy of Paterson Parchment Paper Co.

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Crinkled genuine vegetable parchment is a sheet of parchment which has been creped or crinkled to increase its strength. Among its uses in the packing-house is that of liners for boiled-ham retainers, the users claiming that a better yield is obtained, there is less labor in cleaning the molds and the molds do not have to be re-tinned as frequently for they do not pit quite so badly as unlined molds.

Poultry-packers: Genuine vegetable parchment, being both insoluble and grease-proof, is used by poultry-packers to provide extra protection for the contents. Since parchment is not weakened by moisture, it can be depended upon to keep food in good condition. The parchment being snowy-white, and not absorbing fat or blood or becoming soggy, makes for a sales-compelling and attractive appearance.

Dairy industry: One of the best illustrations of the unique protective qualities of vegetable parchment is afforded by the almost universal use of this sheet in the wrapping of butter. Here the packer demands (1) absolute purity and freedom from all tastes and odors, (2) wet strength and, (3) grease-proofness even while wet.

Vegetable parchment meets these requirements and consequently has been accepted as the standard wrapping for good butter for many years. It offers protection from without as well as from within, for parchment will help to keep foreign odors away from butter.

Parchment is used as a wrapper for prints or rolls of butter, also as a lining for butter boxes or butter tubs. Many types of cheese are wrapped in parchment.

Vegetable parchment can be boiled in water or brine to completely sterilize the sheet before it comes in contact with the butter.

Milk or cream can gaskets of vegetable parchment are also generally used to prevent leakage, to keep out dust and dirt and to protect the milk or cream from worn or rusty can covers and cans.

Ice cream should also be protected by vegetable parchment in the form of a wrapper for bricks or a protective covering for the tops of cans of bulk ice cream. Vegetable parchment strips clean from the ice cream and leaves no shreds of wet paper in case the ice cream becomes soft.

Small squares or circles of vegetable parchment are often used over the tops of milk bottles to provide complete protection to the pouring lip of the bottle until it reaches the housewife's kitchen.

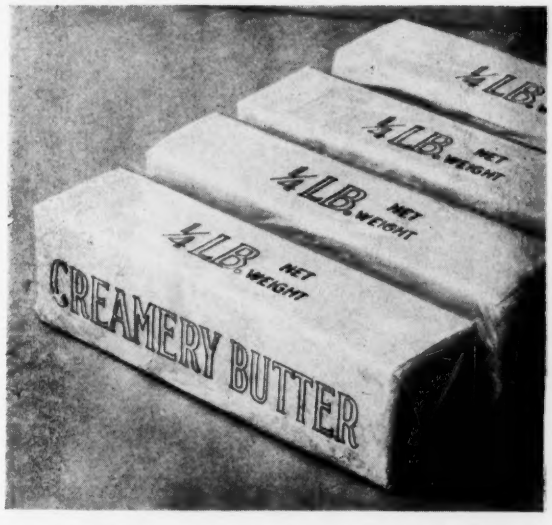
Fish-packers: The fishing industry is a large user of vegetable parchment in the form of wrappers for fresh, frozen or smoked fish. The reason is obvious, for a wrapper is required that will have plenty of wet strength and that will stand moisture, brine, and salt. In addition the parchment sheet is fat and oil resistant.

For frozen fillets of fish it is customary to use parchment waxed on one or both sides because of the greater insulating value and because the waxed surface prevents the paper from sticking to the frozen fish.

Vegetable industry: Many vegetables shipped with or packed with cracked ice are protected with parchment. The moisture from the vegetables or the water from the melting ice does not harm the parchment, so that the protection is maintained all the way through to destination. This parchment may be used in the form of a printed band, a printed wrapper or box or crate liner.



3. Printed parchment wraps for fish fillets. Photo courtesy of Paterson Parchment Paper Co.



4. Parchment butter wrappers. Photo courtesy of Kalamazoo Vegetable Parchment Co.

Many vegetable packers are finding it to their advantage to use a printed wrapper or band of vegetable parchment to identify their products.

Lard and shortening manufacturers: Vegetable parchment is used extensively in the lining of tubs and tierces and also in the lining for 1-, 2-, 4- and 8-lb. cartons in which lard and shortening is packed. The unusual fat and oil resistant qualities of parchment are necessary to prevent grease penetration and staining.

Frosted Foods: Vegetable parchment paper, both plain and coated with paraffin on both sides, has long been used for wrapping fish fillets. Some packers have used parchment papers for fruits and vegetables, particularly for liquid or semi-liquid packs. For liquid and semi-liquid packs, the paper is first made into a bag. The bag is opened out in the carton, filled, the top folded over, and the seam or fold is heat-sealed.

Miscellaneous uses: Many other types of products require the unusual protective qualities of vegetable parchment. For instance, manufacturers of steel ball bearings have found it advisable to use parchment as a wrapper to prevent the oils in which these bearings have been dipped from penetrating the wrapper and staining the carton in which they are packed.

The manufacturers of rubber specialties use parchment as a covering for sticky surfaces, for the interleaving of rubber and as a transfer label for branding inner tubes.

Parchment is also used extensively in the manufacture of fine greeting cards and of fine stationery.

Printing: Special inks are used in the printing of genuine vegetable parchment, since the printing must not offset when used on greasy, wet, or briny foods. The inks must stand the boiling test, for if you will refer back to the dairy industry, you will find that most of the dairies boil their butter wrappers and liners before they use them. The majority of the wrappers are printed. Printed wrappers are probably one of the best mediums of advertising, for the carton of butter, with its printed wrapper enclosing the print, goes right to the home and is looked at many times daily by the one who does most of the buying.

TRANSPARENT WRAPPING SHEETING

by HAROLD A. LEVEY*

While all of us can recall seeing thin gelatin sheeting on packages as far back as we can remember, it was only until a year or so before the World War that we saw a completely transparent form of cellulose sheeting. The nature of the demand for the transparent wrapping fairly parallels that of the glass container in accordance with such phrases as "See what you are buying." However, it offers decorative possibilities not within the scope of the glass container. Its adaptability, due to its extremely flexible nature, makes this possible. Further, it may be colored, embossed, printed upon, and satisfactorily bonded together.

Cellulose and Cellulose Derivatives

The first type of transparent cellulose sheeting which met with ready acceptance as a general wrapping was composed of viscose or regenerated cellulose. This material is completely transparent and colorless, is slightly hygroscopic, non-inflammable (but burns), and is the lowest-priced completely transparent sheeting obtainable on today's market. It is affected to a degree by differences in atmospheric conditions, more particularly humidity changes. It can be obtained in colors and embossed designs. The non-moisture-proof form is not used as a food wrapping in direct contact with food products possessing a high moisture content. Its most extensive application is that of an outer wrapping for nearly every type of commodity of such size as can be readily enclosed within its standard size of sheet dimensions, and the price and profit margin of the article permitting its use. Its relatively low price, together with its ease of sealing and workability on automatic equipment, has extended its use to almost limitless fields.

A relatively new type of sheeting which has recently found its place on the American market as a general wrapping is that which is composed of cellulose acetate. It possesses an unusually high degree of clarity, brilliancy, and surface sheen. It is practically unaffected by atmospheric conditions and humidity changes. It can be obtained in colors, is readily printed upon and embossed, as well as quickly cemented. Its properties can be so varied that the same material can be made into sheeting which has striking rigidity, or can be prepared so that it possesses the flexibility of rubber sheeting. In addition, these conditions can be closely maintained through wide humidity and temperature changes. Its moisture transmission values can be controlled within definite limits, so that it may be readily applied to almost any type of wrapping, including direct contact with food products which it encloses. As it is not affected by humidity changes, it is effectively used as a covering for the windows of envelopes, window cartons, and display containers.

A new form of sheeting which has recently become available is made of ethyl cellulose, an ether of cellulose and ethyl alcohol. It is stable to alkalies, heat and light. Its high flexibility is inherent in the material and is not obtained through the use of any added substance. It is a tough, clear, glossy sheet which transmits up to 95 per cent of visible as well as ultra violet light. It remains strong and flexible and does not shrink or curl on aging, or on exposure to light and over wide variations in temperature and humidity. It is readily printed upon or embossed and easily cemented. Some types are moisture-proof and heat-sealing. The standard material has good resistance to attack by greases and vegetable oils and special types are available which are entirely unaffected by naphthas and mineral oils. Ethyl cellulose sheeting is an excellent material for window packages and display containers and can be used in direct contact with foodstuffs. Although it will undoubtedly find its place as a general purpose wrapping material, its combination of properties indicate its more immediate application to uses at present not satisfactorily filled by other sheetings.

In order to overcome some of the shortcomings of the

* Consulting Chemist and Industrial Engineer.

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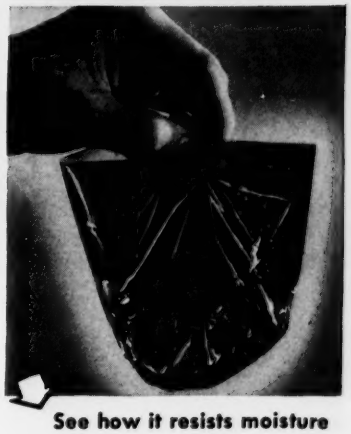
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See how it resists puncturing



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* Consulting Chemist and Industrial Engineer.

viscose or regenerated cellulose sheeting, more particularly to render it moisture-proof, this type of cellulose sheeting is coated with a thin film formed from a nitrocellulose lacquer containing resins, plasticizers, and waxes. The resulting sheet is essentially moisture-, oil-, and grease-proof, of greater strength and increased inflammability. While it is not completely water-proof, it is highly resistant to the transmission or penetration of moisture which should be the interpretation of the term "moisture-proof" as used in this article. This treatment reduces its sensitiveness to humidity changes and increases its resistance to the attack of insects and the growth of mold.

Because of the moisture penetration resistance offered by this coating, this type of sheeting is invariably used where the wrapping must come into direct contact with the food products, and especially when it is desired that the original moisture content in that food or similar commodity be retained for a fairly long time. This applies particularly to such materials as confections, baked foods, and tobacco products, whose moisture content must not be lost; while crackers, candies, and related materials must not take up moisture. Even though this type of sheeting costs nearly one-third more than the uncoated sheet, the volume used of this coated sheeting is about three times that of the uncoated sheet. Obviously, its resistance to moisture, as well as its ability to maintain the moisture content of wrapped materials in almost the same state as when they left the manufacturer, appears to more than offset any increased cost that may be incurred.

All of the above types of sheeting are practically odorless and tasteless, and can be formed into an almost gas-tight enclosure. Certain of these types possess sufficient thermoplastic properties to make a satisfactory "heat seal" to bond sheet to sheet by the application of a moderate amount of heat and pressure. These composite forms of sheeting make a wrapping which will retain nearly all of the original odor and flavor of the materials contained therein.

A new development in transparent sheeting has recently appeared on this market which possesses the property of filtering out the ultra violet rays or active elements of daylight. These rays are largely responsible for the spoilage of many forms of food products and cosmetics, which prematurely become rancid or lose their odor, flavor, or color when exposed to natural light. This form of sheeting is clear and transparent and is obtainable in the standard form of viscose sheeting, as well as the coated or moisture-proof product. Where a greater degree of opacity to these detrimental light rays is desired, this type of sheeting is available in an amber shade, and will preserve such wrapped products for a longer period than the above described colorless sheeting.

Resin-treated Papers

Papers have not yet been prepared in modified or treated form which have resulted in a sheet that could be considered completely transparent; that is, a transparency comparable with that of water or glass, or which when held up to the light would not diffuse the light source. As a result, these types of papers appear in varying degrees of translucency. Properties and uses of the various types of wet and dry waxed paper, glassines, waxed glassines, vegetable parchments and the like are, of course, already well known to the packaging industry. There are, however, types of resin-treated papers which have an unusually high degree of translucency approaching transparency. They have good moisture transmission resistance, and are practically oil- and grease-proof for the limited period of time for which they are used as a food wrapping. Like all treated papers, as well as all the other sheeting mentioned in this article, these last-named products are air-tight and dust-tight. They are immune from insects and mold growths. Their inflammability is slightly greater than that of the untreated paper.

Resin Sheeting

There is now available sheeting made wholly from resins. The polyvinyl ester resins are largely used and possess many of the desirable properties of the cellulosic types. These types are especially valuable for their heat sealing characteristics and for lamination over paper and fabrics. In addition to the vinyl ester resins, polystyrene is also being made into thin sheeting, while the acrylic ester resins are beginning to make an entry into this field. The basic cost of these products and the engineering problems involved in their fabrication into sheeting have retarded their entrance into this field of application.

Rubber Derivative Sheeting

An innovation in transparent sheeting has recently made its appearance. It is not composed of a cellulosic material, but is made from a rubber derivative known as rubber hydrochloride. These new forms of completely transparent sheeting are highly moisture transmission resistant. They are slightly plastic, but not elastic. Their characteristic difference from the cellulosic type of transparent sheeting is that while their initial resistance to tear is less than the cellulosic type, they offer substantially greater resistance to a tear once started.

Another variety of sheeting is an exceedingly plastic film composed of rubber and wax which can be permanently stretched to several times its original dimensions. While this film is translucent, it has several properties in common with the above types.

Modern trends have been decidedly in the direction of the completely transparent wrapping, and of these there is a preponderance of favor toward the moisture-proofed types, notwithstanding their substantial increase in cost. These situations indicate clearly that the desideratum is to make the wrapped object completely visible as well as to reach the consumer in practically the same condition as when it left the manufacturer. Such conditions demand a form of sheeting which shall itself be

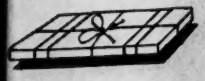
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Manufacturers of Decorative Papers

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Research Service

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UNUSUAL developments in the conversion of paper have resulted from the cooperative efforts of converters and the Research Laboratory of S. D. Warren Company.

Moisture-proof packages, including wraps for soap, coffee, gum, candy and bakery products, produced by the combined efforts of converters and the Warren Company, are in use. Waterproof and liquor-proof table tops, architectural panels, and other plastic products have been formed from laminating papers developed by the Warren Company. Efficient insulators for electrical use are manufactured from Warren papers. Problems in decorating and lacquering have been solved by cooperation between converters and the Warren Research Laboratories.

S. D. Warren Company offers two services to converters of paper. They are: (1) the technical assistance of a research laboratory that originated many basic developments in paper making and that has a broad understanding of fundamentals which have been and can be applied to a great variety of specific converting problems; (2) the production experience and facilities of a mill that operates fourteen paper machines and fifteen coating units in manufacturing a widely diversified line of products for a great variety of uses.

And in addition there is a proved standard Warren line of papers for converting use. These are listed below. For requirements not covered by the papers listed here, inquire of the Converting Division, S. D. Warren Company.

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Body Stocks for Coating and Decorating
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Corrugating Papers
Laminating Papers for Plastics
Alkali-proof Papers
Envelope Papers
Backing for Foil and Cellophane
Blotter Facing
Coffee Bag Paper
Special Processing
Lining Papers

S. D. WARREN COMPANY Warren's STANDARD **89 BROAD STREET, BOSTON**

invisible and at the same time possess a high order of protective value. It must include such properties as water-, oil- and grease-proofness, and dust- and air-proofness, a high resistance to moisture transmission, good tensile strength and flexure value, together with a retention of these properties over a substantial period of time. It must be available in colors, capable of being readily printed upon and embossed, easily and quickly cemented, as well as being readily adapted for packaging machine (automatic or semi-automatic) operation.

While the moisture-proof viscose sheetings have, in general, most of these desirable properties, they have, however, many shortcomings. They are a laminated composite sheet, the surface coating which renders them moisture-proof having a thickness of only one ten thousandth inch. While moisture transmission resistant, these sheetings are not water-proof. On immersion, or sufficiently long contact with water, the thin protective coating will become detached, thus becoming ineffective for the purpose desired.

Relief effects are now obtained by embossing and printing which in many cases have eliminated at least one wrapping and resulted in a package of more attractive design and greater utility. Owing to the complete transparency of this sheeting, only the printing is visible and appears to be a part of the object wrapped.

Gummed transparent sheeting is now available, both clear and in colors. It can also be supplied printed upon and embossed. Printed and cut-to-shape seals and closures are now fabricated which effectively serve the purpose of sealing and labeling or marking such packages. It also designates the strategic point at which the wrapping might be most readily opened. The clear and colored transparent gummed tape is used in many manually wrapped packages as a time-saver and results in a more striking wrapping. The clear, colorless, transparent gummed tape is by far the best product for making an invisible repair on torn paper, fabric, or other materials.

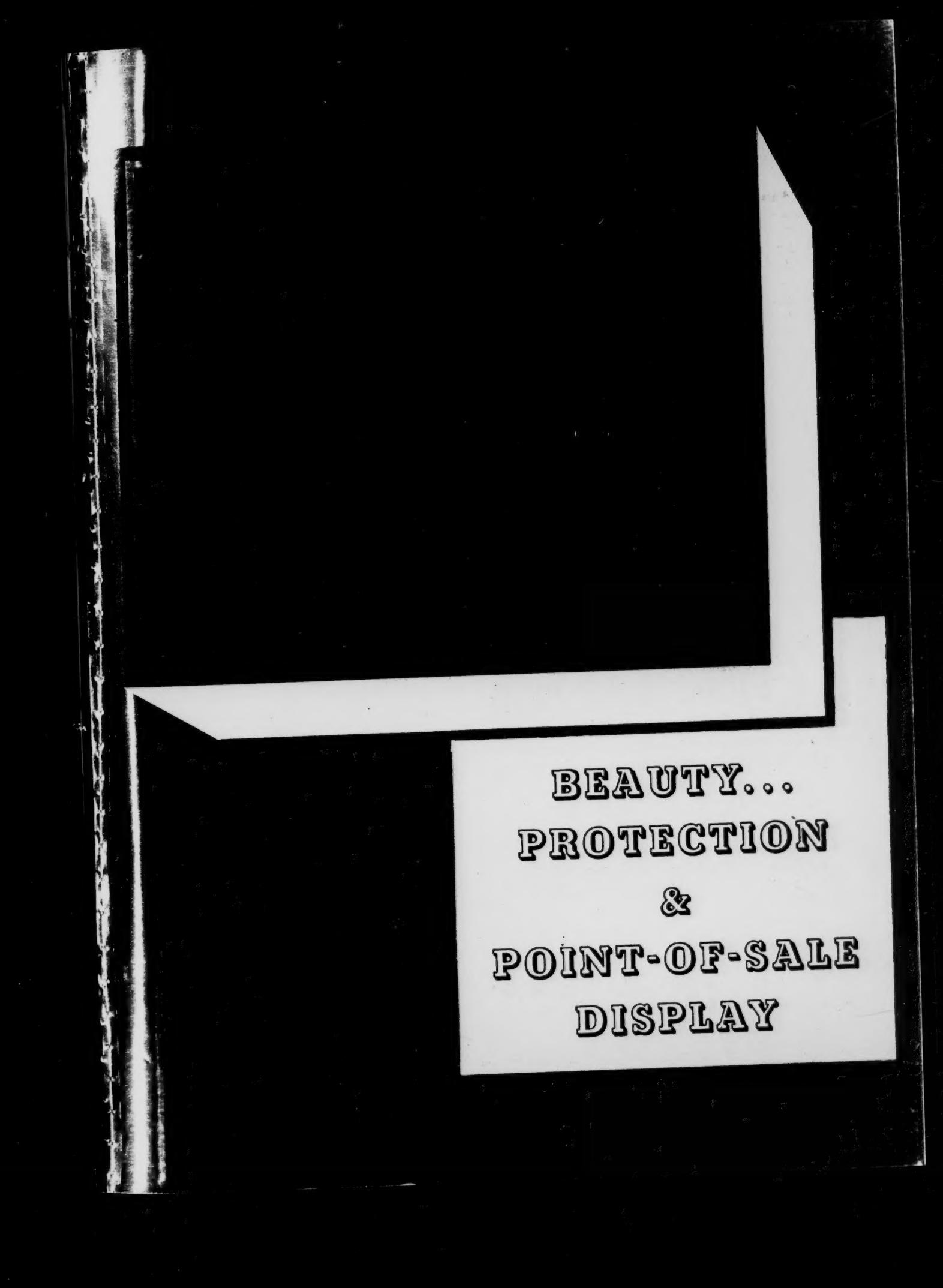
As transparent sheeting possesses unusual strength for its thickness, the sealing of packages so wrapped and sealed can be opened only with difficulty. To overcome this situation some manufacturers leave a part of one flap turned up at the closure. Others enclose a small strip or narrow ribbon of a thicker variety of the sheeting, in another color which projects out at the joint in the wrapping.

As binding tape, transparent cellulose sheeting finds use when folded into a tube with lapped joint and then pressed flat. It may be obtained clear or in colors, as well as with an inserted core of other materials such as metallic foils and paper or fabric that may contain printed matter which shows through the transparency.

SOURCES AND TRADE NAMES

Types	Trade Names
1. Regenerated Cellulose	
E. I. du Pont de Nemours & Co. Wilmington, Del.	*DuPont Cellophane*
Sylvania Industrial Corp. New York, N. Y.	*Sylvania Cellophane*
2. Coated Regenerated Cellulose	
E. I. du Pont de Nemours & Co. Wilmington, Del.	*Moisture-proof Cellophane*
Sylvania Industrial Corp. New York, N. Y.	*Moisture-proof Cellophane*
3. Cellulose Acetate	
American Products Mfg. Co. New Orleans, La.	*Inceloid A.* *Inceloid M. T. R.*
Celluloid Corp. Newark, N. J.	*Lumarith Protectoid*
Eastman Kodak Co. Rochester, N. Y.	*Kodapak*
Transolene Corp. Barrington, Ill.	*Transowrap*
4. Ethyl Cellulose	
American Products Mfg. Co. New Orleans, La.	*Inceloid E*
Dow Chemical Co. Midland, Mich.	*Ethofoil*
5. Rubber Derivatives	
Goodyear Tire & Rubber Co. Akron, Ohio	*Pliofilm*
Marathon Paper Mills Rothschild, Wis.	*Parafilm*
Marbon Corp. Chicago, Ill.	*Marbofilm*

Types	Trade Names
6. Casein	
American Foundry & Machine Corp. Brooklyn, N. Y.	*Inda*
Kraft-Phenix Cheese Corp. Chicago, Ill.	
7. Coated Casein	
Kraft-Phenix Cheese Corp. Chicago, Ill.	
8. Gelatin	
Central Import Corp. Chicago, Ill.	*Transpara*
9. Resin Treated Papers	
Riegel Paper Corp. New York, N. Y.	*Diafane*
Transpara, Inc. Rhinelander, Wis.	*Maralux*
10. Resins	
Bakelite Corp. Bloomfield, N. J.	*Polystyrene*
Carbide & Carbon Chemicals Corp. New York, N. Y.	*Vinylite*
Gordon-Lacy Chemical Products Co. New York, N. Y.	*Vinyl sheeting*
11. Coated Starch	
American Products Mfg. Co. New Orleans, La.	*Amyloid*
12. Coated Carbohydrate Gums	
American Products Mfg. Co. New Orleans, La.	*Carbofilm*


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1. Regenerated Cellulose	Yes	No	No	Yes	No	No (Some types are)	No (Some types are)	Yes
2. Coated Regenerated Cellulose	Yes	Yes	No	Yes	No	No (Some types are)	No (Some types are)	Yes
3. Cellulose Acetate	Yes	No (Some types are)	Yes	Yes	Yes	No (Some types are)	No (Some types are)	No
4. Ethyl Cellulose	No	Yes	Yes	Yes	Yes	No (Some types are)	Yes	No
5. Rubber Derivatives	Yes (Some types are not)	Yes	Yes	Yes	Yes	No	Yes	No
6. Casein	Yes	No	No	Yes	No	No	No	Yes
7. Coated Casein	Yes	No	No	Yes	No	No	No	Yes
8. Gelatin	Yes	No	No	Yes	No	No	No	Yes
9. Resin Coated Papers	Yes	No (Partially)	Yes	Yes	Yes	No	Yes	No
10. Resins	Yes	No	Yes	Yes	Yes	No	Yes	No
11. Coated Starch	Yes	No	No	Yes	No	No	No	Yes
12. Coated Carbohydrate	Yes	No	No	Yes	No	No	No	Yes

PRINTED TRANSPARENT CELLULOSE

by T. W. KOCH*

As recently as fifteen years ago, the prediction was freely made that a successful process of printing upon transparent cellulose film would never be developed. Among others who ventured such prophecies were commercial printers who had made unsuccessful efforts to print upon cellulose film with existing inks and presses.

That the use of printed cellulose has, in the short intervening time, reached the status of a commonplace practice in packaging, is a tribute of high order to the ingenuity and perseverance of those who had the courage to defy precedent and make the necessary outlays of capital to develop inks, engravings and presses which have made possible the remarkable effects now available in a variety of forms.

The processes of printing employed, the equipment used and the results attained in the production of printed transparent cellulose have been widely publicized; it is assumed that for the purpose of this description only a brief reference to processes and available material forms is required. Detailed information, as well as expert counsel on packaging methods and design is available to present and prospective users, not only from the manufacturers of the various types of film, but also from the numerous concerns who devote their attention to the conversion of the film into its final forms.

In the order of their development, there are three major processes of printing on transparent cellulose presently in use. These are:

1. Letterpress, which employs relief engravings and oil inks.
2. Gravure, in which impressions are made from etched cylinders with lacquer inks.
3. Aniline, using spirit inks and, usually, rubber printing plates.

Each method possesses certain advantages, as well as certain limitations, which will be briefly considered.

* Director of Sales, Shellmar Products Co.



1. Milk chocolate, foil wrapped, is overwrapped in colorful printed transparent cellulose. Photo courtesy The Forbes Lithograph Co.



2. A Christmas wrap suitable for a wide range of package sizes. Note printed ribbon extending to the edges of the wrap. Photo courtesy Shellmar Products Co.

Letterpress printing: This is the best known of all printing methods and is the one by which the first successful printing on transparent cellulose was accomplished. However, due to the temperamental nature of the film, really successful commercial production was not attained until roll-fed presses were employed. These required the addition of many devices, such as means of continuous control of the web, or sheet, during the printing operation, to insure registered printing of successive colors. Several types of rolled-fed presses are presently in use. In some types, a number of printing or plate cylinders are arranged around a central platen cylinder and the printing is done on a continuous web, which is then delivered in the form of either sheets or rolls. Other types of presses cut the sheet to a predetermined size before the printing impression is made.

In either case, because oil inks permeate the film only to a negligible degree, it is essential to use slip-sheets to present offsetting. Where presses are of the sheet delivery type, the sheets of printed cellulose are interleaved with paper of an appropriate character which is allowed to remain in place during the drying process. Where delivery from the press is in roll form, a special type of slip-sheet paper is introduced before the web of printed cellulose reaches the winding mechanism and, in this case, the combined roll of cellulose and slip-sheet goes to a drying rack for the necessary interval. In practically all cases, the slip-sheets are removed before the cellulose is trimmed to size, or rewound and slit to required widths, in the case of rolls.

Letterpress printing may be done on either surface of the cellulose film and, where it is not objectionable for the printed side to come in contact with the product to be packaged, the use of reverse or underside printing permits the retention of the full gloss, or sheen, of the cellulose, thus enhancing and vivifying the colors of the inks. Letterpress printing is also employed almost exclusively where the printed cellulose is to be used on moist or greasy objects, notably on meats and fish. It can be done successfully on all types of cellulose film now available and, since it is of the "wet" type of printing, a fairly comprehensive range of effects employing halftones and bendays is possible.

Gravure printing: This process came into use only after letterpress printing on transparent cellulose had become fairly well standardized and its limitations had been explored. The inks used are of the fast drying, lacquer type, which not only eliminate the use of slip-sheets but permit the printer to obtain a degree of opacity impossible with oil inks, as well as to print color upon color in a continuous operation. The pigments used in gravure inks permit also the obtaining of very brilliant full colors and shades, although only a limited range of tone effects are at present available.

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3. Bread wraps of printed transparent cellulose, providing full visibility for the entire length of the loaf. Photo courtesy of the Shellmar Products Co.



4. Textile examination is permitted by the transparent wrap, while full informative labeling is afforded by the printing thereon. Photo courtesy The Forbes Lithograph Co.

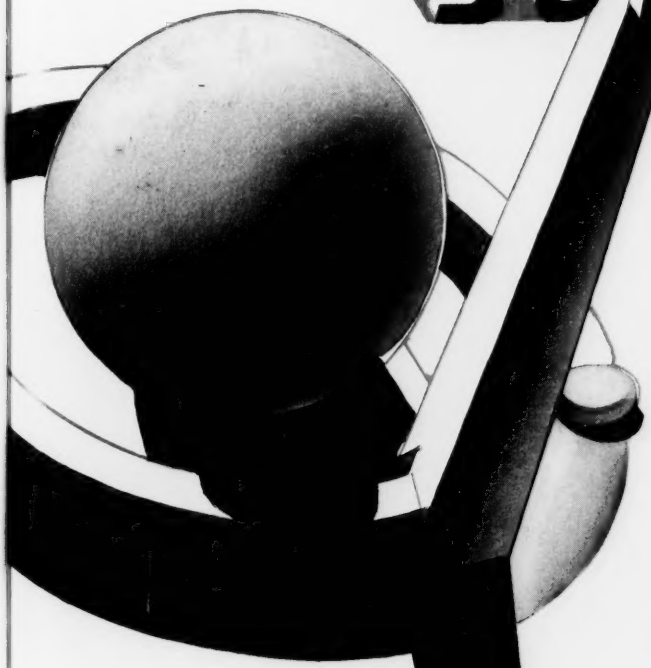
Since gravure printing can only be done through the use of intaglio-etched cylinders, the cost of engravings for this process are relatively higher than for either letterpress or aniline printing, and the combination of more than one design on a set of cylinders is impossible, unless all of the designs can be executed within the limit of the number of colors available on the press and unless each design, in repeat runs, can be produced at the same time and in the same proportion as to quantity as the original run. At present, presses are available where as many as six colors may be produced at a single run.

The gravure method produces the highest type of printing at present available on transparent cellulose and particularly attractive effects are obtained through the use of reverse printing. Half-tones can be satisfactorily reproduced, provided the tone work can be underlaid with a neutral color, such as white. Gravure printing is not recommended for use where the product to be packaged is greasy, or has a high moisture content.

Aniline printing: This type of printing is the latest to come into use on transparent cellulose. Because it is generally done through the use of rubber, rather than metal printing plates, and because it employs fast drying inks, eliminating the necessity for slip-sheeting, it was originally hailed as a means of producing printed cellulose more economically than the older processes. However, the limitations of the processes and inks originally employed made aniline printing less satisfactory from the standpoint of package appearance and users of printed cellulose were loath to adopt it, even at somewhat lower costs. Since aniline printing was originally introduced, much progress has been made, notably within the past year, in improving the results obtained and some highly creditable work is now being turned out by this process. Naturally, the improvement of the process involved the use of more expensive materials and equipment and the cost of aniline printing today is probably on a par with that of letterpress.

Tone work in aniline printing is possible only to a very limited extent and its use on moist or greasy products, particularly foods, is somewhat questionable. It does give excellent opacity, brilliant colors and, particularly in surface printing, a luster that is superior to that of either letterpress or gravure.

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General Information

Tints: Both gravure and aniline inks may be used in producing tints on transparent cellulose. A wide range of colors is available and the tints do not impair the gloss of the film and alter its transparency only as the color of the tint reacts on the color of the product packaged. Letterpress tints are generally unsatisfactory, being inclined to muddiness.

Opacity: As mentioned in preceding paragraphs, gravure and pigmented aniline inks produce impressions of greater opacity than letterpress, although a degree of opacity suitable for many purposes can be obtained by the latter process.

Metallics: The gravure process is pre-eminent for printing metallics. Brilliance or opacity can be obtained with a single impression, although two layers of color may be employed where extreme opacity is desired. Letterpress metallics are very satisfactory in surface printing, where the metallic may be underlaid with a sizing, as of yellow in the case of gold, or white in the case of silver. Where reverse printing is employed, letterpress metallics cannot be underlaid, and are correspondingly lacking in opacity. Satisfactory metallics for aniline production have not as yet been developed.

Reverse printing: All three printing processes may be employed to produce reverse printing, although letterpress is inferior to either gravure or aniline for this purpose, except where solid lays of full color are used.

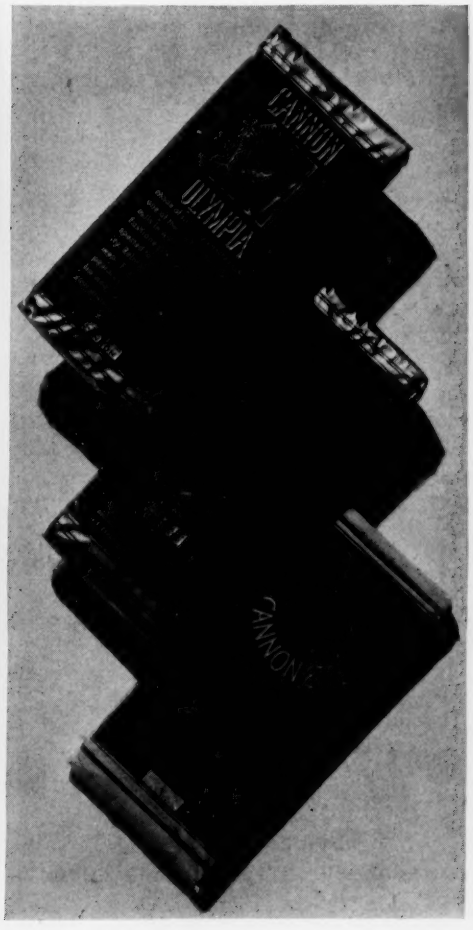
Register: Where fine register is required, the letterpress process is superior to either of the others. The use of metallic plates, giving sharp, controllable register, permits the production of effects not possible with either gravure or aniline. Where the design is such that color may be superimposed on color, register often is of negligible account in gravure or aniline work.

Tone or screen work: Bendays and half-tones are well within the range of most good producers of letterpress printing on transparent cellulose. Half-tone work is possible to a fair degree in gravure, with a limited range of benday screens or stipple effects also available. The employment of such effects in the aniline process is definitely limited to date.

With the amount and character of the research work now going forward in the field of cellulose printing, it is not too much to expect that four-color process work will eventually be done on this material.

5. Typical candy wrap for multi-unit package. Photo courtesy Shellmar Products Co. **6.** Wrap for prepackaged stockings. Photo courtesy Shellmar Products Co.





Package Forms

Printed transparent cellulose is available in a variety of forms, the better-known of which are listed below:

Sheets: These are available in any type of film, printed in from one to six colors, in practically any size up to 33 by 36 inches.

Rolls: Continuous printed rolls of any type film are obtainable in widths ranging from one-quarter inch to 36 inches, printed in from one to six colors. Printed designs may be continuous, or may be spot-registered for use on automatic packaging machines, where the printed design is accurately located on the package by means of a photo-electric cell device or an "electric eye."

Bags: Single or double wall bags of transparent cellulose, printed in from one to six colors are available in flat, square and satchel bottom styles. Nearly all types of film may be employed in their construction. Sizes range from very small bags, in the flat type, up to 10 by 18 inches in the satchel bottom style.

Envelopes: Both die-cut and roll-cut styles are available in wide range of sizes with either side or end openings and with printing in any number of colors up to six. Most types of transparent cellulose can now be successfully fabricated into envelopes.

Specialty packages: Tubes for cigars and other slender objects, such as tooth brushes, are available, printed in as many as six colors, and in most types of film. Other packages combining printed cellulose faces with backs or affixed pieces of board or other material may also be had. Sheets or rolls of printed cellulose, affixed at one or both sides to corresponding sheets or rolls of foil, glassine and other materials, are available. Other types of packages employ sheets or rolls of printed cellulose in combination with folding cartons, or with fibre plates or trays; in some instances, such combination packages are supplied with retaining rings or other essential parts to make a complete package.

Laminated printed cellulose: This comparatively new development is treated at greater length elsewhere in this book. For the purpose of this article, it may be said that printed cellulose, laminated to a variety of base materials, is available in sheets, rolls, specific types of bags, and folding cartons.

WINDOW-FACE WRAPS

Window-face wraps have been developed essentially as a means of combining the advantages available through the use of opaque and of transparent materials for application to wrapped products. They may be applied on standard wrapping machines and produce a package which affords the colorful printing or lithography possible through the use of paper plus the full transparency of cellulose sheeting.

They are most widely used in the baking industry but have also been applied for wrapping candies, meat products, fish, fruits, vegetables, textiles, hosiery, macaroni and even cotton batting. Bakers' wraps must necessarily be moisture-proof and heat sealing moisture-proof transparent cellulose is therefore utilized in conjunction with heavily waxed heat sealing papers. Bakers' wraps are supplied in continuous rolls for use on all standard bread wrapping machines. When used for candy bars and small units of confection, the wrappers are again supplied in continuous rolls for machine wrapping. In such instances, moisture-proof cellulose and grease-proof glassine papers are utilized. In other instances, colored bond papers, colored glassines, parchment, aluminum foil, kraft and fancy box papers have been used.

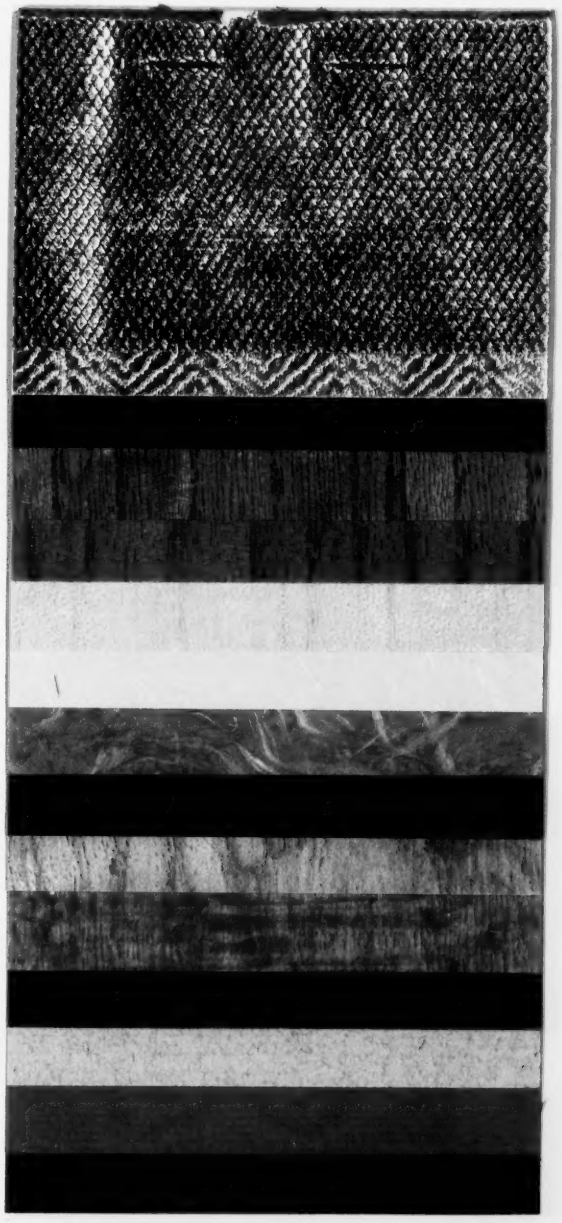
Not all window wraps are made with a continuous strip of window. Some are known as die-cut wraps and consist of printed paper wraps with a cellulose window



1. Two variations of the window-face wrap as used in bread wrapping. Photo courtesy Thomas M. Royal & Co.

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covering the die-cut opening. In other cases, the same effect is secured through the lamination of a continuous film of cellulose to a die-cut film of paper. The effect here is to secure the advantage in finish and appearance of cellulose lamination plus the window opening.

Continuous strip window material has been used for a number of years in the fabrication of bags, the opaque strips forming the side walls and gussets of the bag, while the transparent strip forms a window on the front, back and a portion of the bottom of the container. On occasion, the bottom may be reinforced to withstand the weight of the product in shipping and handling.



2



3



4



6

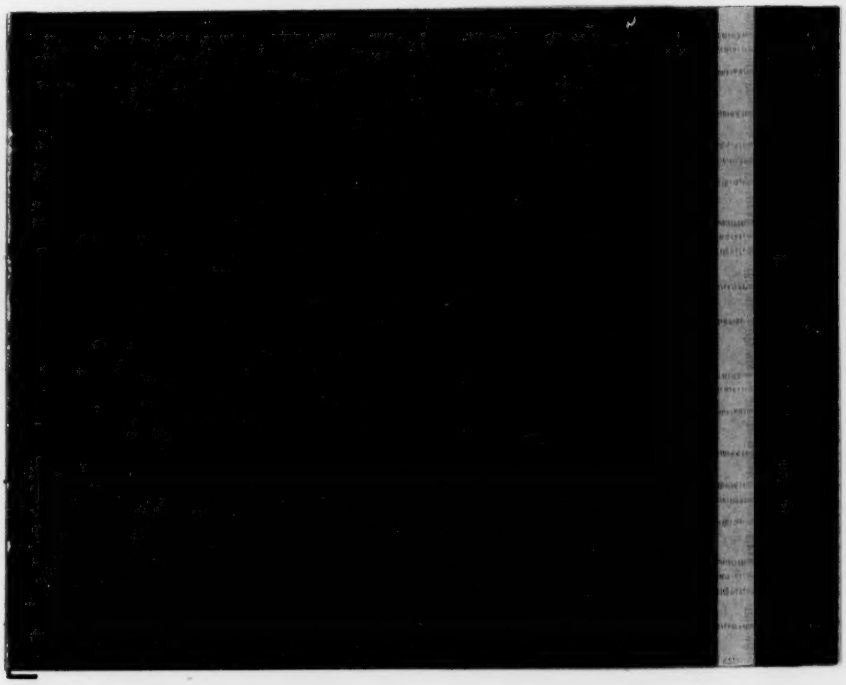


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2. Window-face wraps as used for buns and other baked goods. **3.** Bread wrap, with printing on transparent portions, utilizing the bread itself as background. **4.** An unusually large wrap for cotton batting. **5.** Window-face wraps are being used with increasing frequency for fruit and vegetable packaging. **6.** Bag fabricated from window-face material. All photos courtesy of Milprint, Inc.

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LAMINATED SHEETING

Papers of different weights and different physical characteristics have been combined by lamination for a number of years. Again, for a number of years, efforts have been made—successful efforts in many respects—to give gloss to printed paper, and to intensify printed colors by varnishing or lacquering the finished surface. When transparent sheeting came on the market, successful attempts were made to combine the device of lamination with the ideal of a glossy overcoating for printed paper, the method being to laminate a transparent sheet to the printed surface. In these attempts, the same means of lamination were tried as for combining papers.

Viscose Cellulose

Extensive use is made of viscose cellulose (cellulose hydrate, also designated cellophane) film in laminating operations to obtain high-gloss, protective and dust-proof coatings on cloth, paper, composition cork and other sheet materials. Its properties are such that it is compatible with a great variety of adhesive materials, whether of the water-dispersed type such as plasticized Senecal, spirit-dispersed type such as ester gum, ester-dispersed type such as cellulose nitrate, or emulsion type.

For certain specific kinds of laminating work, the slight expansion and contraction of cellophane, in response to changes in humidity, render it unsuitable, but in many instances the proper selection of base materials obviates this difficulty, as attested by the quantity consumed in laminated form.

Plain cellulose hydrate film (cellophane) is not moisture-proof, but possesses resistance to oil and grease, while the coated sheet, termed moisture-proof grade, is very resistant to the passage of water vapor. By combining these properties with suitable adhesives and base sheets, an enormous variety of laminated products may be made, and new commercial forms of laminated cellulose hydrate film are used regularly.

The increase in production of laminated cellophane is largely the result of extensive research in adhesives and mechanical means of conducting the operations required to produce perfect composite sheets. Problems of timing, tension control and determination of temperature limitations have been solved by a number of firms engaged in this work, with the result that a new type of converting industry has been established during the past ten years, and a large number of new commercial products has been made available to manufacturers of finished goods. The developments incident to the laminating of hydrate film have awakened widespread interest in other forms of laminations, involving various transparent sheets, papers, cloths and metal foils.

Plain viscose cellulose film possesses a great advantage for bulk laminating in its low cost, which permits its application in fields where the cost of other transparent sheets would render their use prohibitive. The hydrate film may also be obtained in a large assortment of colors and thicknesses, which extend its range of usefulness.

In the textile field, simple and inexpensive base materials may be laminated to create practically a new material. For instance, it may be embossed to give an excellent imitation of leather, the uses for which are too numerous to mention. Other designs may be embossed, or, in fact, when left in plain gloss or matted finish, it transforms a simple fabric to one of beauty and durability not obtainable through other known methods. It suggests the unusual for artificial flowers, ladies' belts and other decorations for the smart costume.

Cellulose Acetate

Principally because cellulose-acetate sheeting is waterproof, and thus practically unaffected by atmospheric conditions and humidity changes, and because therefore it has less tendency to shrink or contract, this material has found wide use for purposes of lamination.

After a great deal of time, extensive research, and costly experimenting had been spent on the problem, it became evident that more perfect lamination could be accomplished if the operation could be done dry instead of wet. By this change, all difficulties with the application of wet adhesives to a printed surface would be eliminated—for the active solvents for softening waterproof transparent sheeting are likewise active solvents on practically all types of printing ink.

Recently the Eastman Kodak Co. has developed a transparent cellulose-acetate sheet with a dry, thermoplastic adhesive incorporated on one surface. The material is suitable for heat-and-pressure lamination to a wide range of plain and printed surfaces. This eliminates all adhesive problems; and by varying the three elements—time, pressure, and heat—many different effects can be obtained on the surface of paper or other media. The range of effects obtainable in the laminating operation is very large: from a smooth, high-gloss surface to a dull matte finish or a special embossed design, depending upon the requirements of the customer.

The prospective markets for a thermoplastic transparent sheet appear to be extensive. The markets already developed in a limited way have been with printed catalog-covers, menus, book-jackets, catalogs, handbooks, sign, cartons, and variety of other printed applications. The permanence and strength of this treatment of paper surfaces, the freedom from discoloration, the resistance of an acetate surface to water and grease, and the effect of cellulose-acetate lamination

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is a soft but durable velour ideally suited to the rigors of handling and examination which every box must endure before the final sale is made. Many different types and colors.

PAYSON DISPLAY VELOUR

A new and attractive paper for more effective window display. It has all the softness and appeal of velvet for effective background work.

PAYSON velour finishes can be applied to a wide variety of commercial products in many styles and patterns. We solicit your problems.

THE PAYSON COMPANY

260 GROVE STREET • ROCKLAND, MASS.

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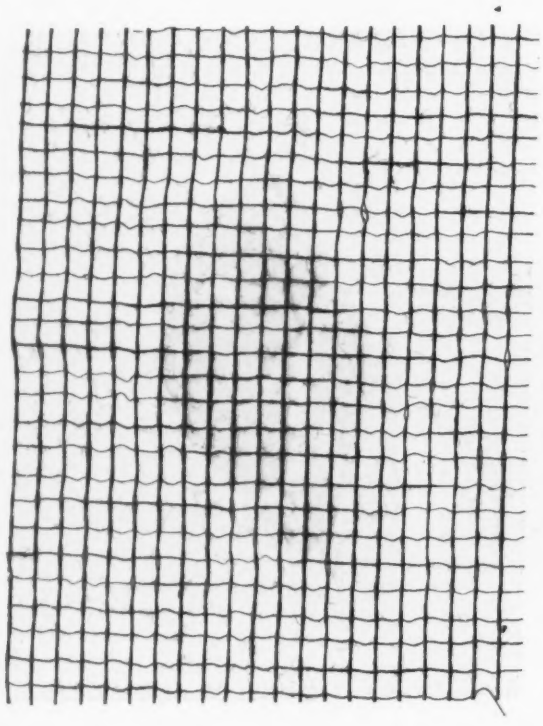
1. Laminated wrap. Courtesy of The Dobeckmun Co.

in intensifying the underlying printed colors—these properties have given the process a growing popularity for the uses cited.

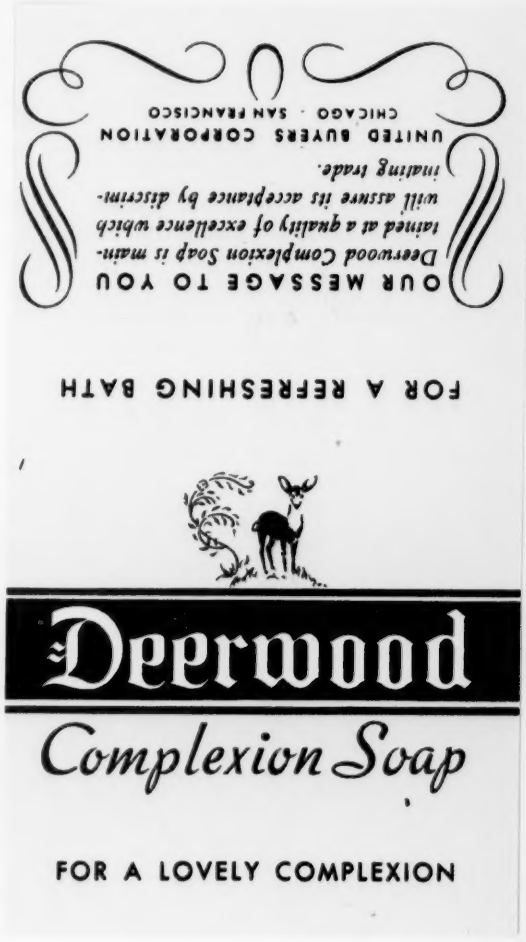
Not long ago, in the packaging field, the combination window-laminated box was introduced. The advantage of this, with the laminating sheet covering the entire external surface of the box as well as the window area, is obvious. Dry foods are put up in laminated packages. Several brands of coffee are now on the market in laminated bags which help to preserve the aroma. Cellulose acetate has high dielectric properties and is finding extensive application in the electrical field. It is now being laminated to various kinds of paper and cloth for use in small motors and induction coils.

One of the most interesting features accomplished by lamination has to do with the tremendous increase in fold strength to any substance by virtue of lamination. The following tests, made on a Shopper fold tester, show interesting results:

A sample of paper, unlaminated, gave a result of 16 double folds with the grain and 21 double folds across

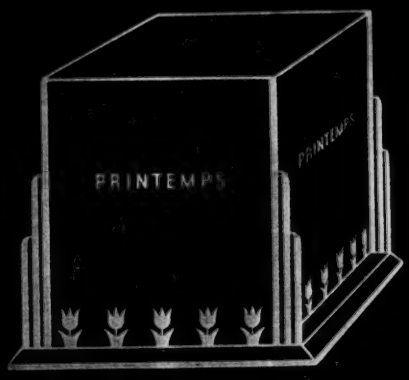


2. Reinforced laminated wrapping material. Courtesy Lamcote Division, Arvey Corp.



3. A laminated soap wrapper. Courtesy of the Shellmar Products Company.

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the grain; whereas, on the same paper, laminated on one side, results of the test were 1116 with the grain and 806 across the grain. These tests were conducted with a relative humidity of from 0 to 75 per cent.

Another sample, so weak that it broke in the tester before any folds were made, when laminated gave the value of 1036 double folds. Another sample which broke before lamination gave a value of 487 double folds when laminated. Still another sample had a value of 13 folds when unlaminated and 1038 after lamination.

Another important comparison is that most materials when coated with a high gloss lacquer crack very readily on folding, whereas a similar substance laminated with cellulose acetate is, of course, extremely tough, as indicated by the results of fold tests as shown above.

The cost of a laminated cellulose-acetate surface is higher, as is to be expected, than any varnish or lacquer surface; but the nature of the finish, plus the protective and strengthening value, justifies it. Lamination of cellulose-acetate sheeting is a quality operation with a quality material for quality jobs. As such it has a glowing future, for it fills a typical twentieth-century need.

TISSUE PAPERS

The primary function of tissue paper is adding refinement to the packaged product. Its use adds a touch of character to articles as far apart as a whiskey bottle and piece of fine lingerie. Literally, hundreds of products can gain the impression of finer quality by the simple and inexpensive process of wrapping them in a good quality sheet of tissue.

There is, however, a secondary function of tissue paper. To many articles it gives protection during shipment—a type of protection which varies with the nature of the article and the kind of tissue used.

There are, of course, different grades of tissue with different characteristics. For all-around packaging, where both appearance and protection are important, the most popular grade is No. 1 White. This is a full bleached tissue made of an all sulphite finish. Color, strength, and formation, of course, vary with the manufacturer but it is not difficult to select a sheet with good white color and strength and a texture which promotes the idea of quality in the product.

Where protection is the primary object and appearance is secondary, manila or No. 2 White tissues are often used. This is especially true in packing garments which are unpacked later before being displayed to the buying public. The tissue, stuffed into sleeves and padded around the garment, prevents much of the wrinkling which otherwise would occur. Manila and No. 2 White tissue is satisfactory for this purpose even though it is not pure white in color and is not as strong or uniform as No. 1 White. It usually contains around 40 per cent groundwood pulp, a cheaper grade than sulphite, which reduces its strength and appearance but, at the same time, increases its bulking qualities.

Non-Tarnish Tissue

For wrapping such articles as silverware or metal products which tarnish easily, special non-tarnishing tissue is made. There are two kinds—white and kraft. White anti-tarnish tissue, or silver tissue as it is sometimes called, is a specially treated No. 1 grade. It contains a higher grade pulp and must be handled more carefully all through the manufacturing process than regular No. 1 White tissue. Every trace of sulphur, which promotes tarnish, must be eliminated.

Most kraft tissue will pass this test, too, for the reason that kraft pulp is made by a different process than sulphite pulp used in manufacturing white tissues. Kraft tissue, however, has the same color as ordinary kraft wrapping paper. Hence its use is generally confined to the wrapping of hardware items, machinery parts, etc., while white silver tissue is used for wrapping higher quality articles made of silver, copper and brass, etc.

Besides these grades, No. 1 tissue is made in a wide range of colors offering almost unlimited possibilities for a pleasing, harmonious effect. Manufacturers who cannot put color into their products find that wrapping in colored tissue is an inexpensive way of taking advantage of the sales appeal of color. Others use colored tissue to identify different products and still others find that certain colors serve a purpose which no other packing material can. Shoe manufacturers, for example, invariably use black or brown tissue in packing suede shoes to eliminate all possibility of white lint.

Decorated Tissues

Both white and colored tissues are also available printed with attractive designs for everyday and seasonal use, which opens up another wide field for the use of tissue in packaging. Almost any everyday item wrapped in a sheet of tissue decorated with a Christmas design, immediately makes a strong bid for sale as a Christmas gift. Carryovers by the retailer can easily be taken care of by removing the tissue and selling the item as regular everyday stock.

A new feature of the printed tissues offered for this year is water-proof paper. The inks which are used in printing the attractive designs which are available are rub-proof, spot-proof and moisture-proof, which adds

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greatly to the suitability of printed tissues for various packaging purposes.

Thus far we have dealt only with the manufacturer and producer. There is another important packaging use for tissue paper, namely, in wrapping merchandise at the point-of-sale in the retail store. Here, appearance assumes first importance. In most retail stores, especially up-to-date department stores, sales rooms are made as attractive as money can make them. Everything possible is done to provide an attractive background for the display of merchandise. Fixtures, lighting, draperies, decorations—all are used to build up an atmosphere of quality. Everything is calculated to favor the merchandise.

When any article is sold, it must be taken away from these attractive surroundings and stand on its own. The next time the customer sees it, is in her home. The only way a store can bridge the gap is by sending out merchandise in a package which carries into the home some of the atmosphere of the sales room. In creating such a package, tissue is of the highest importance not only because it adds refinement but because it is the one packaging material that comes in immediate contact with the article wrapped.

All department stores also are frequently called upon to wrap articles purchased as gifts. Here tissue is, if anything, even more important than in wrapping ordinary packages. The article is usually placed in an attractive gift box, lined with pure white or colored tissue and the box itself is then wrapped in tissue and tied with ribbon or tape. It is surprising how attractive packages can be made and how substantially gift sales can be increased with an intelligent, forward-looking gift-wrapping policy. Decorated tissues of appropriate designs and colors are used extensively for wrapping during gift-buying seasons.

It must be mentioned, too, that both plain and waxed tissue, cut into fine even shreds find an important use as a soft, clean and highly resilient packing material. Green and purple shredded waxed tissue is the standard material for packing Easter candies. Plain and waxed tissue excelsior is used for packing.

It is obvious then, that tissue paper is already an important packaging material. It is destined to become even more so. The good taste of the American people is gradually improving. Packagers are obliged to improve right along with it. The use of tissue is one effective means, and an inexpensive one, of doing so.

ANTI-TARNISH PAPERS

An anti-tarnish paper, whether in tissue weights or heavier weights such as parchment, is one that is made wholly from materials that do not contain ingredients, chemical or otherwise, that will cause tarnish on silverware or other highly polished metal articles. From this it will be seen that an anti-tarnish paper, as a wrapper, does not offer protection from tarnish, it merely is a wrapper that itself will not cause tarnish.

One of the fallacies, long held by the public to be a truth, is that black tissue, for instance, is a suitable wrapper for silverware. As a matter of fact, the dyestuff used in making black paper has a very decided tarnishing effect on polished metals and consequently black tissue is a very unsuited material for wrapping. Practically all anti-tarnish papers are white, although in late years certain light tints have been developed from dyestuff materials that do not contain tarnish impurities.

Sulphur, by far, is the most common and the most harmful of tarnish impurities. It is present in the atmosphere in varying degrees. The atmosphere around a city such as Pittsburgh, for instance, contains much more sulphur and sulphur fumes than would be found in the atmosphere of a rural community.

The United States Bureau of Standards specifies that anti-tarnish tissues for wrapping silverware must contain no more than .0008 per cent sulphur. This has likewise been established by one of the large silver companies, as a maximum for any paper that actually touches silver. On paper, on the outside of boxes, which does not touch the silver, the percentage is .0016.

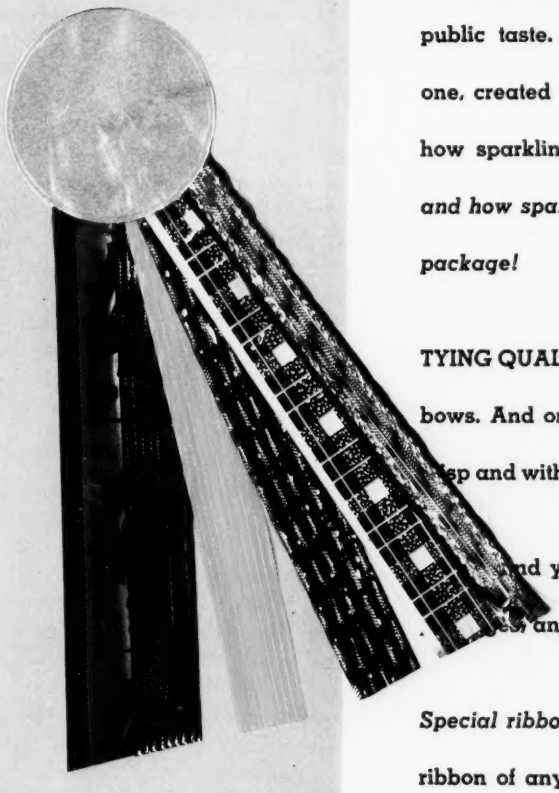
Parchment is made from wood pulp which is manufactured by the so-called sulphite process and the paper itself is parchmentized by treating with sulphuric acid. Most parchment papers do not have satisfactory anti-tarnish qualities but some of the more expensive parchments have been washed and rewashed to remove all traces of free sulphur and can be used with more or less safety in silver wrapping. Bags made of parchment paper are usually lined with transparent cellulose to prevent a tarnishing action of the parchment itself. This transparent cellulose is practically air-tight which prevents tarnishing impurities in the parchment from reaching the silverware and is also in itself an anti-tarnish material.

A new type of cotton-lined paper, available in the form of bags or cut-to-size sheets, is also coming into use where anti-tarnish qualities are desirable. The soft cotton lining serves to absorb shipping shocks, while the paper backing makes for easy handling and permits fabrication into bags and rolls.

Flannels of anti-tarnish type are also being used as wraps and as bags of round bottom, square bottom, draw string and other types.

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HERE ARE THE FACTS on HY-SILTONE!



DESIGN—Hy-Sil designers know packages, know products, know public taste. That's why every HY-SILTONE design is a clever one, created to make sales. Judge for yourself from these samples how sparkling and eye-appealing HY-SILTONE ribbons are . . . *and how sparkling and eye-appealing one of them will make your package!*

TYING QUALITIES—HY-SIL is easy to tie, easy to shape into elegant bows. And once tied, HY-SILTONE *holds its bow!* HY-SILTONE is crisp and with stiffness enough to maintain an unruffled appearance.

Send you samples of HY-SILTONE. Or, send us one of your ribbons, and we'll promptly return it tied in the right ribbon.

Special ribbons for special uses. If you require a private package ribbon of any type, we can design and produce it for you . . . at moderate cost.

Hy-Siltone

HY-SIL MANUFACTURING COMPANY

SPRING AVENUE REVERE, MASS.

LEATHERETTE AND FABRIC MATERIALS

The following is a list and description of various types of materials commonly used for box coverings, as differentiated from fancy and decorative papers, lithographed and printed wraps.

Booktex is a line of pyroxylin-impregnated fabrics which is entirely free of oil. It is furnished for box covering in a range of embossings including leather-like grains, geometric patterns, and conventional designs.

Fabkote is a high-grade scientifically developed product having a non-woven cellulosic base. It is attractive in appearance, has a soft glove-like feel, retains embossing, is free from clothiness, and cuts with a clean edge that will not fray. Fabkote is water-proof, washable, will neither scuff nor mar, and is obtainable in a number of different qualities gauged to perform a definite job. It is manufactured to satisfy both high and low tensile and tearing strengths. It has been used to advantage in packaging confectionery and delicate instruments. Available in a wide variety of grains and colors.

Fabrics of all types are following style trends. New attractive colors and patterns are being introduced. Definite progress has been made during the past few years in the manufacture of fabrics particularly for covering re-use containers and stock boxes.

No. 280 Fabrikoid is a pyroxylin coated paper, water-proof and washable. Firmness makes this material especially adaptable for set-up cases. This particular quality is the least expensive of this group but it is manufactured in a selection of grains and colors.

No. 700 Fabrikoid is a light-weight lacquered fabric, also washable and water-proof. It is manufactured in different pliabilities to serve a greater variety of purpose. Applicable to packages that demand a soft, pliable covering, such as comb or vanity cases; fragile or breakable apparatus such as mirrors use a less pliable 700 Quality. A varied selection of grains and colors are featured.

Fabtex is a rubberized fabric coated on both face and back. It is manufactured in either plain or pyroxylin-coated finishes. Fabtex is water-proof and washable, available in an array of colors and grains. The material is not limited to a single quality but is designed to serve a number of purposes.

Keratex is a line of pyroxylin-coated materials made on a base of fibre treated with Latex to make it pliable, tough and durable. It is particularly suitable for work where flush-cut edges that will not ravel are important. It is generally used in leather embossings. It can also be furnished in fancy grains.

Keratine, a lightweight standard, is most pliable for use in the making of fancy cases, combining a real wear-resisting surface, beautifully embossed, in any color, or combination of colors desired.

Keratol is a line of pyroxylin-coated fabrics made for covering cases and boxes. It is furnished in leather-like effects and also in fancy embossings and colorings. Keratol is now available with an oil-free pyroxylin coating, is easy to work and has even longer life.

Permatex is a lacquered, water-proof, and washable fabric having a lustrous, silky appearance and feel. The surface can be printed and lithographed.

Revolite is not to be confused with leather cloths (pyroxylin-coated). It is quite different in that the coating is a special patented Bakelite resinoid which does not contain rubber or oxidizing oils. It remains flexible and does not harden. It is resistant to mild acids, most chemicals, oils, and greases. It is water-proof and heat resistant. Revolite can be furnished in a wide range of colors, including a variety of metallics and in several qualities.

Sturdetan is an inexpensive leather substitute with a durable pyroxylin coating on a non-woven fibre base. The colors are fast, and the metallic finishes will not tarnish or rub. Sturdetan is washable and water-proof. Wide variety of grains, colors, and embossings make Sturdetan adaptable to hundreds of packaging requirements. Standard width, 40 inches, 250 yards to the roll.

Sturdite is a leather substitute of strong fabric heavily coated with pyroxylin so that even in the heaviest grains the surface does not appear clothy. Various leathers are imitated with a variety of embossings. Water-proof, washable Sturdite is suitable for covering on boxes of fine gifts to be kept in original containers. Metal finishes are also obtainable. Standard width is 36 inches, but special colors and grains are available in 40-inch widths.

Texon is a latex-saturated paper-base product; pliable, tough, and water-proof. Uniformity in thickness and size assures economical handling in plant operations. It cuts cleanly without a ragged edge, handles easily in all stitching operations, and wears well in actual use. Texon is used in packing goods which may be damaged by moisture such as cement, lime, and coal. It also may be used to protect articles which are wet when shipped, as for example, fish or other sea foods.

Textileather is a pyroxylin-coated, fabric-base material available in an infinite variety of colors, grains, and finishes. Special constructions, widths and weights have been developed for the packaging industry.

Textiloid and **Texkraft** are pyroxylin-coated, composition-base materials, available in a large variety of colors, grains and finishes. They are produced in gauges ranging from .006 to .100, have high resistance to edge tear, may be skived like leather, handle and work easily and are well adapted to packaging needs.

Velveteen fills a particular lining need in good packaging, especially where a soft cushiony effect is desired, as nothing else can quite give the effect of richness as a luxurious velveteen. Velveteen comes in widths of 18 in., 22 in., 24 in., 29 in., and 36 in., making for a minimum of waste in cutting.

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RIBBONS AND TIES

A number of materials are available for the decorative tying of packages. The use of such ties has measurably increased in recent years, not only in the gift field, where these materials have always occupied a prominent place, but in the candy, cosmetic and textile fields and in a number of other industries.

A decorative tie, to be acceptable for packaging purposes, must offer a high degree of beauty plus strength, ease of tying, resistance to soiling and resistance to wear in transit, on display and in the home.

Cotton Ribbons

Printed cotton ribbons are available in all widths from the narrowest to well over an inch. They may be had in several hundred stock patterns or made to order in any color or combination of colors and in any design. Thus patterns can be made to match or complement designs or color schemes of package wraps, box covers, etc., or for direct application as a tie over textile products, particularly where the latter are to be used in transparent wraps or transparent rigid containers.

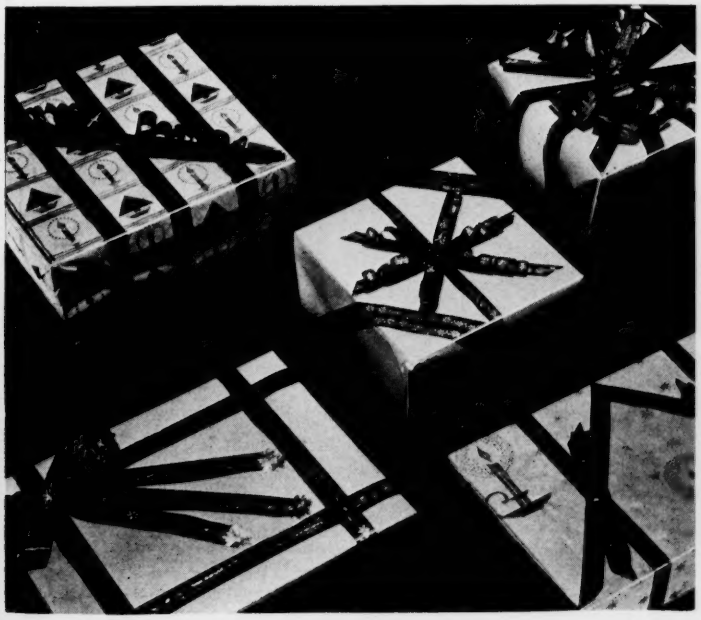
Since designs can be made to include company names, trade marks, etc., ribbons of the cotton type have come in wide use in retail packaging as a form of inexpensive advertising, accompanying their tying functions, as a cost-free dividend. As decorative ties they are widely used for merchandise of all sorts.

Fabric Ribbons

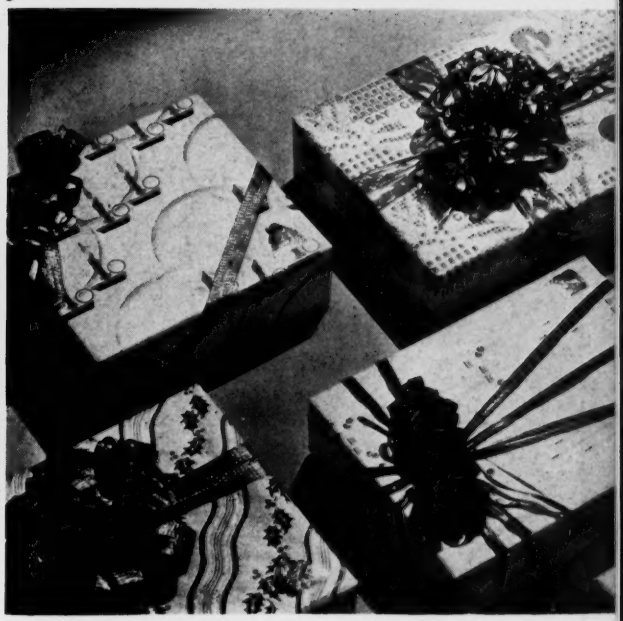
Ribbons of silk, satin and other fabrics are occasionally used for packaging purposes although their high cost and the introduction of less expensive means of achieving equally attractive effects has tended to limit their use. They are being used, more frequently, as "made-up" ribbons with edgings of colored cellulose or, occasionally, metal foil.



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1. Cotton tying ribbons. Photo courtesy Chicago Printed String Co. **2.** Decorated cellulose ribbons. Photo courtesy Freydberg Bros., Inc. **3.** Decorated cellulose ribbons. Photo courtesy Hy-Sil Manufacturing Co.

Cellulose Ribbons

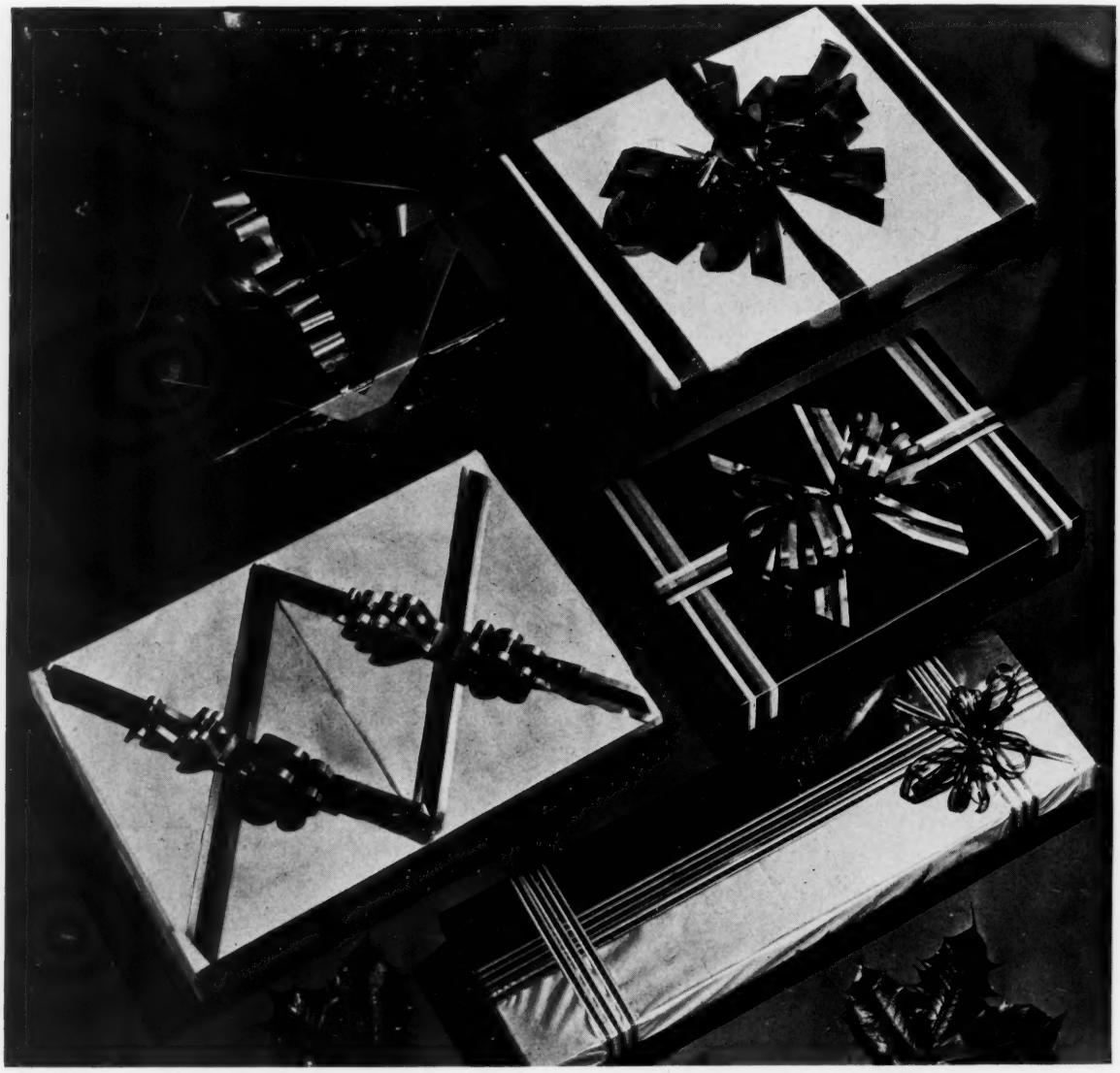
Since cellulose is manufactured and printed in rolls, it was but natural that the addition of a slitting process should be thought of as a means of achieving a ribbon form. Today such ribbons are decorated, cut, treated and folded to form a tie with reinforced edges, great strength and beauty. Multicolor effects are practically unlimited. Many stock patterns are available and private patterns can be made with to meet individual requirements with comparatively low set-up costs.

Cellulose ribbons may be had in completely transparent form, in tinted transparent types, in opaque types, printed designs and fabricated in combination with foil, fabric and other materials. Widths range from 1/4 in. to 4 in. and more. The turned-in edges prevent fraying and the smooth surfaces of the cellulose base avoid soilage. Since the cellulose is sterile, they may be used in conjunction with food products.

Rubber Derivative Ribbons

A new development involves the fabrication of Pliofilm, a rubber derivative sheet material, into ribbons. In color and decoration these closely resemble the cellulose ribbons. In addition, they are water-proof and may thus be used for various purposes for which the ordinary types would not be applicable.

The ribbon has high resilience and high resistance to tearing, may be tied into tight knots and then untied and smoothed out without showing wear. The material may be stitched, glued or serrated on one or both edges



4. Rubber derivative ribbons. Photo courtesy Freydberg Bros., Inc.

Is your package

a "paper parasol"?

Paper is satisfactory if a package is to serve only until the goods are taken home. But what of the package that must be a permanent receptacle for its contents during months of use? In that capacity, there's nothing so reasonable as a Holliston Fabric-covered container! Merchandising sense suggests Holliston Fabrics, too, for an attractive gift box when the contents are transient — stockings, stationery, perfume, candy. Its dual-use permanence suggests itself when the purchase is made. It gets the nod over competing products in paper boxes.

Think of your product in Holliston Fabric-covered boxes. If there's a sunbeam of profit in the thought, get in touch with the Holliston service office nearby. Full cooperation awaits your inquiry.

Holliston fabrics



THE HOLLISTON MILLS, INC.

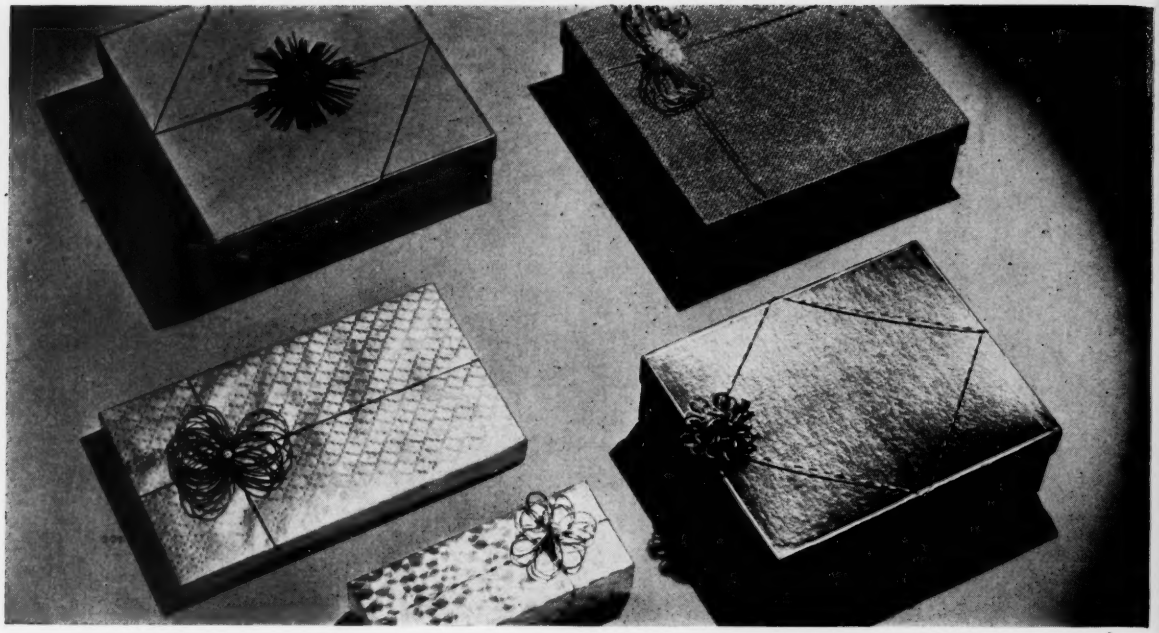
NORWOOD, MASSACHUSETTS

BOSTON · NEW YORK · CHICAGO

PHILADELPHIA · ST. LOUIS

San Francisco: N. F. Hall Co. • Los Angeles: Printers Supply Co.

Richmond: Cauthorne Paper Co. • Toronto: Wilson-Munroe Co., Ltd.



5. Cellulose cords. Photo courtesy Fibre Cord Co., Inc.

and thus lends itself to a number of applications where other materials have not been successfully applied before.

Cellulose Cord

Cellulose cord utilizes a core of rayon, cotton thread or wire around which a cellulose film has been twisted. The material is available in many colors, a number of multi-tone effects and in various gauges. In addition to use for box ties, this material is used for neck tying of cellulose and fabric bags and for tag tying.

Pre-tied Bows

Ribbons of various materials are available in bows, pre-tied and with any specified length of flat ribbon extending from either end. Such bows may be attached to the package by adhesive, staples or other medium, at a pronounced saving over methods involving tying of elaborate bows directly on the package.

We are indebted to R. A. Bayer of Fibre Cord Co., Inc., R. L. Heard, Chicago Printed String Co. and N. J. Strauss of Freydberg Brothers, Inc., for information and aid in the preparation of this article.

PACKAGE SEALING TAPES

The hundreds of millions of little strips of kraft paper on packages, boxes, envelopes, etc., are such a common sight that many packaging men take gummed tape for granted without realizing that interesting developments have taken place in the tape-sealing field during the last few years. This is true not only of its uses, but also of the interesting new machines which have made taping a different thing than it used to be, in certain fields.

Only a limited portion of the trademarked merchandise sold in this country is adaptable to packing by automatic wrapping machines. There remains a large field of trademarked merchandise which still has to be hand-wrapped, and which can be effectively packaged by a judicious use of printed gummed sealing tape or printed gummed labels.

Gummed sealing tapes are usually made of kraft paper gummed with a good grade of animal glue. Three standard weights, according to the Department of Commerce Simplified Practice Recommendations, are 35 lb., 60 lb. and 90 lb. These are basic weights before gluing.

Mechanical feeding and moistening devices have been developed to meet almost every imaginable need. They range from the simple tear-off type moistener to units equipped with automatic measuring, moistening control and cut-off devices. These machines are treated in detail in the article "Tape Sealing Shipments."

Heat-Sealing Tapes

The latest development in the sealing-tape field is the so-called Thermium heat-sealing tape. This tape does not need to be moistened at all. Nor is it tacky like

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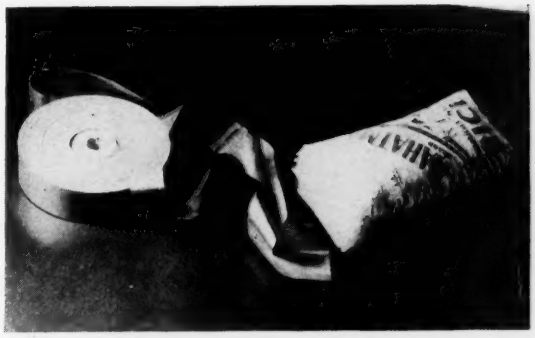
1. Applying heat-sealing (Thermium) tape. **2.** Used for sealing plain transparent cellulose bags. **3.** Used for sealing waxed paper bags. **4.** Used for sealing metal foil bags. Photos courtesy of Seal, Inc.

the widely used Scotch tape. It feels like an ordinary strip of paper, but when hot-pressed onto a bag or package it sticks instantly and tightly. It has attracted wide attention because it sticks tightly to plain transparent cellulose and to metal foils. It also makes possible the taping of waxed-paper bags and packages.

There is Thermium paper tape (made of paper), Thermium Cellophane tape (made of Cellophane), and Thermium cloth tape (made of cloth). The word Thermium is the trade name of the heat-sealing adhesive with which these tapes are coated.

A feature of this tape is that it can be placed on the package *dry* and can, therefore, be *accurately located*, the "moistening" being done by means of a small heated applicator about the size of a large rubber stamp.

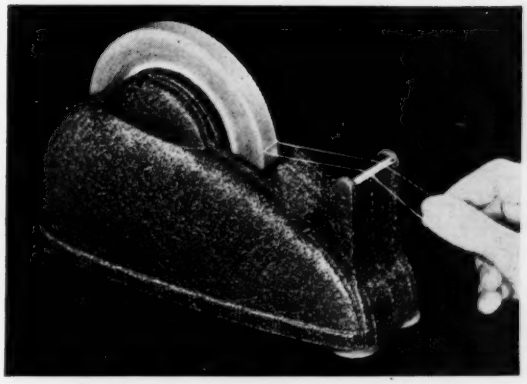
For sealing transparent cellulose bags, foil bags and paper bags, the conventional heat-sealing machines used for crimping can be used with slight modifications. For other applications a small hot plate is used, the strip of tape being laid face up on the plate and the package merely placed on top of it, thus effecting a tight seal. This new sealing tape has extremely interesting possibilities in industries such as meat packing, confectionery, bakery, etc. The adhesive on this new tape is odorless, tasteless and non-toxic.



5. Thermium cellophane neat-sealing tape.

Scotch Cellulose Tape

Single thickness cellulose ribbon is adhesive treated to provide a transparent tape for sealing light shipments, mending, attaching small items to cards, etc. The adhesive is tacky and provides a firm seal. Specially designed dispensing devices are available.



6. Scotch cellulose tape with dispenser and cut-off device. Photo courtesy Minnesota Mining & Manufacturing Co.

XUM

SHREDDED PAPER



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Shredded paper, as its name implies, consists of long slivers of paper materials forming a resilient mass useful in packaging as a protective padding or cushion. In this respect, it provides a number of advantages over excelsior, since it is somewhat less inflammable and it does not break down into dust and lint.

Originally old paper was utilized and aesthetic considerations ignored. Much such shredded paper is still used for packing items into crates for shipment.

However, packagers have found that decorative varieties frequently meet special needs. Waxed glassines, cellulose sheets, plain, colored and fancy papers are today shredded to provide cushioning effects of great beauty, capable of being used in conjunction with the finest packaging materials.

For irregularly shaped objects which do not lend themselves readily to standard sizes of containers, shredded papers serve as the means of adjusting to the size of the outer pack. This is true in the case of fruits, baked hams, etc. Glass packed products, packaged in multiple units for gift sets and sampling purposes, are likewise very frequently protected by shredded paper in one form or another.



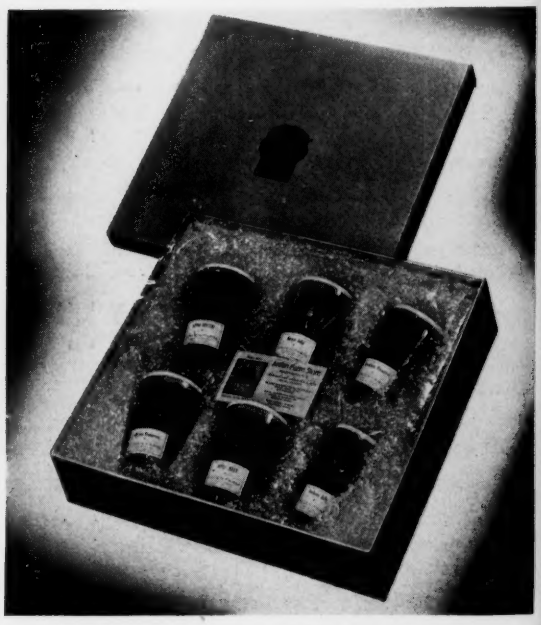
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1, 2 and **3.** Utilization of shredded paper as packing. Photos courtesy of Pioneer Paper Stock Co. **4** and **5.** Shredded transparent cellulose used for gift package packing. Photos courtesy Sylvania Industrial Corp.

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SECTION FIVE

METAL CONTAINERS

Pages 201 to 226

TIN PACKAGES AND CANS

SPECIALTY METAL CONTAINERS

COLLAPSIBLE METAL TUBES

ALUMINUM CONTAINERS

FIBRE-BODIED CANS

XUM

TIN PACKAGES AND CANS

by PHILIP L. FERRIS*

Canning is one of our most essential industries. It has always been a leader for steady employment even in times of depression. We are the largest users of canned products, and more tin-plate is produced here than in any other country in the world. There are approximately 12,000,000,000 tin containers made in the United States alone each year, or about 100 a year for each person. New developments are constantly increasing this number. It is evident, therefore, that the tin can plays an important part in the lives of all of us.

Contrary to the popular conception, a tin can is not made primarily from tin. It is made from a thin sheet of steel coated with a thin film of tin. This tin coating, applied to both sides of the sheet, is necessary because steel alone would tend to rust too easily, not only from the moisture in the air, but also from the chemical reaction of a liquid content. There are numerous lacquer coatings which would frequently furnish adequate protection, but difficulty would arise in soldering the side seams of cans made from plain steel alone at practical can-making speeds. Another feature of the tin coating is that it lends a clean and shiny appearance to the finished product. The unit of measure for tin-plate is the "base box," made up of 112 sheets, 20 inches long by 14 inches wide. The first classification of tin-plate is the weight of the sheets in terms of pounds to the base box. For can-making purposes these weights range from 55 lb. tin-plate (0.0062 inch thick) to 195 lb. tin-plate (0.0219 inch thick). The most common tin-plate employed for cans ranges in weight from 90 to 107 lbs. An added classification of tin-plate is that which pertains to the thickness of the tin coating over the steel base. Sheets with the ordinary light coating of tin are referred to as "coke plate." When a heavier coating of tin is applied, the sheets are designated as "charcoal plate." Both of these types of plate are graded according to the thickness of the tin coating. Coke plate is the most widely used, but charcoal plate may be employed when the can is to be subjected to heavy oxidation and also when an exceptionally bright finish is desired.

It should be mentioned, at this point, that some containers are made from black plate and some, also, from terne plate. Black plate, the ordinary sheet of steel without the tin coating, may be used where soldering is not necessary and where oxidation is not an important factor. Terne plate, consisting of the same steel base, is coated with a tin-lead alloy. This type of plate is used for the manufacture of many non-food containers.

Manufacturers of tin containers, generally speaking, divide their product into two groups. These are (1) cans suitable for processing, and (2) general line cans.

* Sales Research Dept., Continental Can Co., Inc.

1. Key opening vacuum can, generally used for coffee, malted milk, honey, etc.



The Sanitary Can

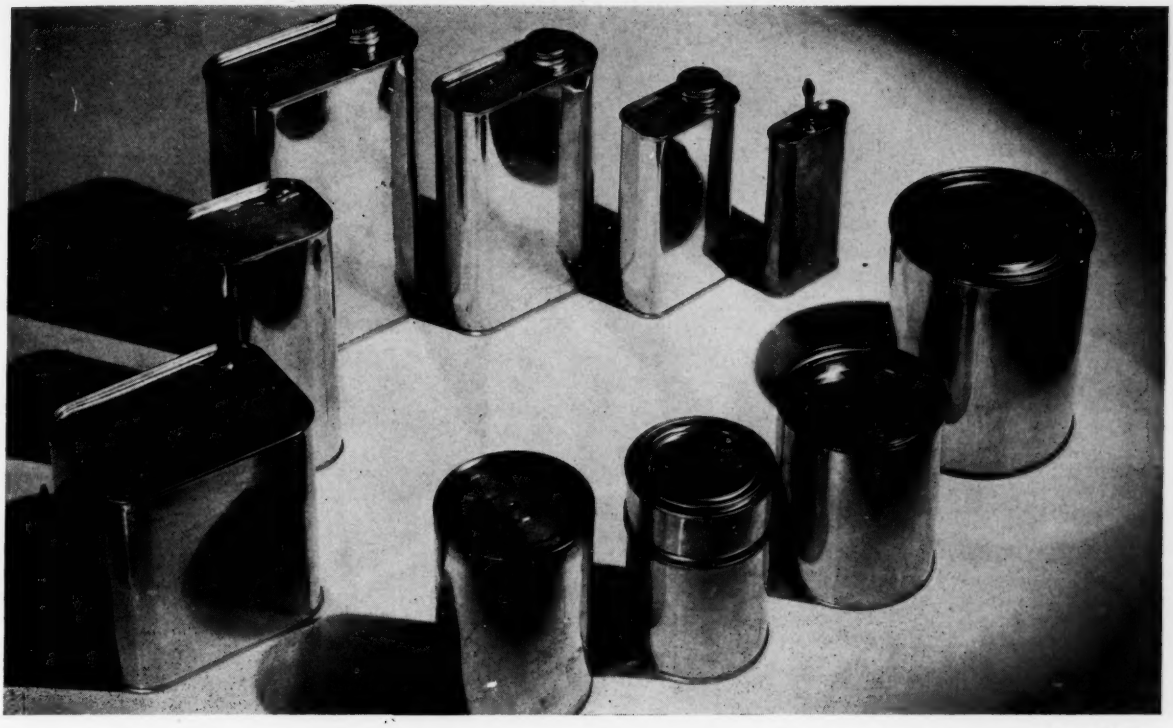
The cans suitable for holding processed foods are generally referred to as packers cans or sanitary cans. There are approximately 1000 kinds of food put up in these containers, including vegetables, fruits, meats, fish, soups, and various specialties. These are generally cylindrical in shape, ranging in diameters from $2\frac{1}{8}$ inches to $8\frac{3}{16}$ inches, and in heights from $1\frac{1}{8}$ inches to $8\frac{3}{4}$ inches. There are, however, other familiar shapes such as the tall oblong type used for packing asparagus, the short oblong type used principally for sardines.

There are a great many variations in the methods of fabricating tin cans, ranging from an entirely hand-made can to an entirely mechanically-produced can.

So that any unfamiliar reader may have an understanding of can-making, there follows a brief description of the most modern method of producing sanitary cans.

The description of the operations follows in the sequence which occurs in actual manufacture:

1. Slitter—Cuts tin-plate to size for the can-body with revolving knives.
2. Body-Maker—Forms the flat body blank into a cylinder and shapes, closes, bumps and solders the side seam on the outside.
3. Flanger—Flanges or expands the top and bottom of the can body previous to rolling of end seam.
4. Double Seamer—Attaches one end to the body with a rolled seam.



2. General line cans to hold liquids.

5. Tester—Tests the cans for leaks by air pressure or a vacuum.

Four separate operations make the ends:

1. Slitter or Scroll Shears—Cuts the tin into strips either straight or with scrolled edge to reduce waste.
2. Press—Blanks out and forms the can end.
3. Curler—Curls or bends the edge of the end to assist in seaming to the can body.
4. Compound Applier and Drier—Applies a ring of liquid gum around the edge of the can end to insure an air-tight seam.

The sanitary can is the most widely used of the can industry. It brings to the housewife not only the common fruits and vegetables, which ordinarily would be available only in the harvest season, but also delicacies from other countries and climates which otherwise would not withstand transportation. Not only does it give the housewife a wide choice for the home menu, but she is also assured of a thoroughly wholesome food when she opens a can.

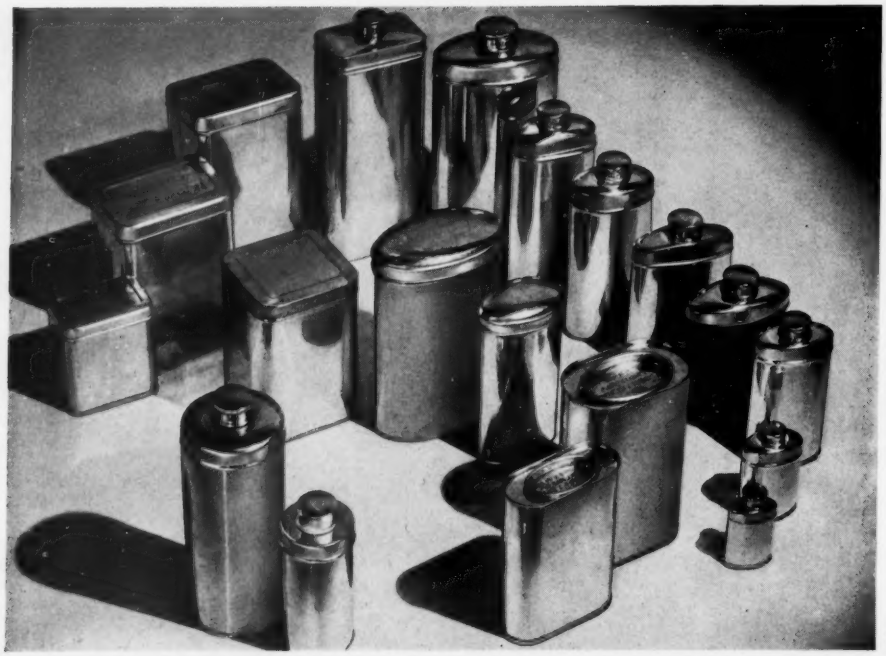
Few realize the comparative modernity of the canning industry. When the French Government, in 1797, offered a prize of 12,000 francs for a method of preserving foods for its armies, there was no conception of the value of such development to our every-day life. The discovery by Nicolas Appert that food can be kept indefinitely, if it is processed to kill all bacteria and guarded against further contamination, made the can industry possible. His method was to seal raw or cooked foods in bottles and to immerse them in boiling water for varying lengths of time. Since his day, processes have been so greatly developed and refined that today we find the can bringing to the average home foods that a century ago were unknown.

The preserving of foods is obviously a technical problem, which requires research and study to develop the best methods for bringing to the consumer a wholesome, palatable product. Fortunately, in this, the can manufacturer has seen an opportunity to serve both the packers and the ultimate consumer. Each detail of can construction has been the object of extensive investigation and mature consideration. For some products it has been desirable to offer a greater protection than a film of tin. Lacquers and enamels have been invented which serve this purpose. Essentially, the process involves the packing of the food into the can, a hermetic seal to prevent contamination, and a thorough heat treatment to kill bacteria.

For years the can manufacturers have been working diligently to develop new methods which would bring canned foods to the consumer, full flavored, and as nearly as possible, comparable to fresh-gathered produce. The days of old fashioned, unfounded prejudice against canned food are past. Today the consumer may, with confidence, select those things from the grocery shelf which most tempt the palate, with the feeling that the can brings a food not only with the fine flavor of plant-ripened fruit picked at the peak of ripeness, but also with all of the wholesome qualities retained.

The expansion of the can industry is the result of developments which assure the consumer of full-flavored,

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3,4. General line cans to hold dry products.

wholesome foods in cans. The peculiar property of the tin can, which permits not only an hermetic seal, but also at the same time a thorough processing of its contents, has year by year not only brought more packers of food products into the ranks of can users, but also has increased the wide variety of canned foods offered.

General Line Containers

General line cans, comprising all tin containers other than those used for processed foods, include a large and complex variety of shapes and sizes to hold many different products. Here again, there are two general classifications:

1. Cans to hold liquids 2. Cans to hold dry contents.

Liquid Containers

The most commonly used liquid containers range in size from the three-ounce oval lubricating-oil can to the well-known five-gallon square can employed by packers of a large number of products.

Containers in this classification can be fabricated in either round, square, oblong, or oval shapes and are designed to hold products such as oil, syrup, paint,

Announcing an Outstanding Development

TELEVISION CANISTERS



TIN CANS WITH TRANSPARENT WINDOWS!

All the protective qualities of fine tin cans, combined with the sparkling transparency and beauty of cellulose acetate!

Clear and brilliant display windows are added to the moisture-resistance, strength, and durability of tin plate! These are qualities equally valuable for tobacco, foods, candy, and cosmetics, as well as other products.

The shopper can now see what she is buying in a tin can. And the product appears more appealing and fresher than ever—behind the lustrous cellulose of "TELEVISION CANISTERS."

Place two otherwise identical cans side-by-side. In every test, the shopper will select and buy the can with the transparent window!

Then, in the home, the contents are always on view. And the housewife or user knows at a glance when to re-order.

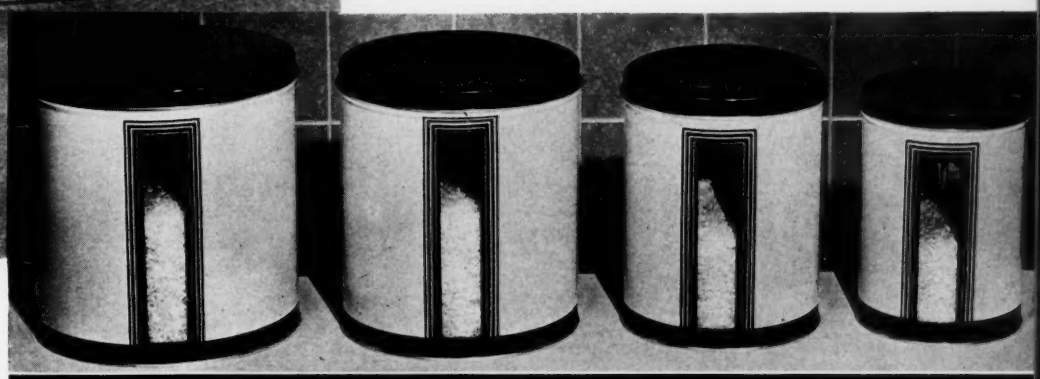
In addition, there is the re-use value: after the original contents are consumed, the container adapts itself to many uses for the housekeeper.

"TELEVISION CANISTERS" have already met with signal success in several fields.

Write for samples and complete information to the George V. Clark Co., Inc., 42-26 13th St., Long Island City, N. Y.

For striking sales increases, package soon in

TELEVISION CANISTERS
(Design Patent Pending)



George V. Clark Co., Inc.

42-26 13th Street, Long Island City, N.Y.

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varnish, polish, insecticide, and numerous different chemicals. The containers are made with soldered side-seams and either compound lined or soldered ends to insure against leaks, for which they are carefully tested before shipping. The well-known key-opening vacuum can used by packers of coffee and other dry products belongs in this group too, since it is made not only liquid tight, but also is designed for a high vacuum pressure.

Dry-Product Containers

There are numerous tin cans made to hold dry products such as tea, coffee, spices, tobacco, cigarettes, talcum powder, crackers, candy, as well as many types of drugs and chemicals. These containers, unlike those which are designed to hold a liquid, generally do not require a soldered side seam and compound lined ends. For some products, such as shoe polish and numerous types of pills, where a shallow container is desired, the body is frequently shaped from a single piece of tin plate.

Covers and Closures

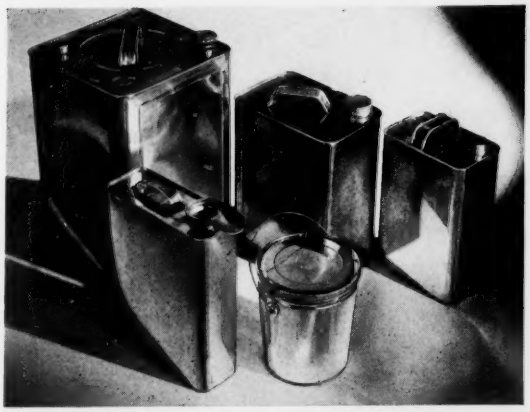
General line cans, both of a liquid and dry nature, employ many different kinds of closures, designed for the convenience of the consumer.

Liquid containers may be fitted with various closures, ranging from different sized screw-caps and other pouring features such as spouts, to the three types of round friction plugs. These are, namely, the single friction, "doubletite," and the "tripletite," carrying out, as the names imply, a single, double, and triple friction contact between plug and ring.

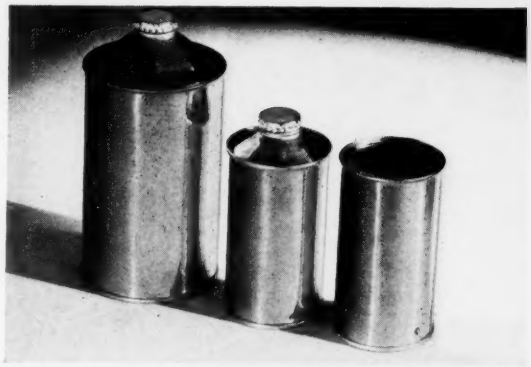
Dry packages are principally closed by slip-on, hinged, slide, and screw covers, as well as plugs, dredges common to spice-cans, and the various necks and caps on all talcum-powder and tooth-powder cans. There is also a closure combining interrupted threads and dimples at the top of a round can body, and around the skirt of the cover that is known as the lock-top. Frequently added to this feature is a paper seal curled into the top edge of the can body which renders the contents tamper-proof.



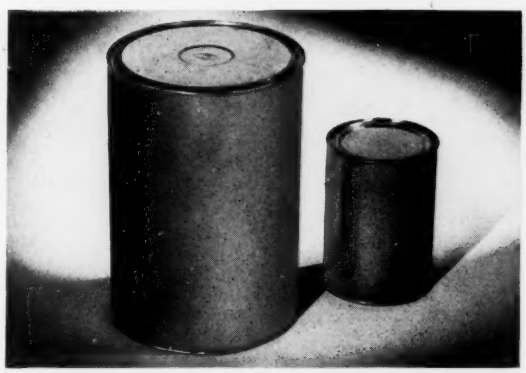
5. Seamless boxes and cans.



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6. General line cans for liquids. **7.** Beer cans—cap sealed and flat top, 12-oz. and one quart. **8.** Motor oil cans—five- and one quart.

Lithography

Tin cans may be supplied in either plain tin for paper labeling by the buyer or they may be lithographed. Whereas by far the greater majority of sanitary cans are paper labeled, most general line cans are lithographed. Can companies maintain art departments to work up attractive designs for their customers, and it is here that some very effective merchandising schemes are conceived, and packages are designed to sell.

Color designs for tin containers may have from one to any number of desired colors, usually applied over a base coat of one color. In all instances the printing or coating is done on the flat sheet of tin-plate, which is eventually cut up into individual container blanks.

EVERY ONE A SUN TUBE

Sun Tubes can be adapted to a limitless variety of products and purposes... sizes, uses and merchandising schemes. Your product, too, may find Sun Tubes a quick and continuing stimulant to sales.



SUN TUBE CORPORATION, HILLSIDE, N. J.

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ALEXANDER SEYMOUR
333 N. Michigan Ave.

CINCINNATI, OHIO
G. M. LAWRENCE
1012 Elm Street

LOS ANGELES, CALIF.
R. G. F. BYINGTON
155 N. Vermont Ave.

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9. Packers' cans, suitable for processed foods.

Whereas base coatings of paint and lacquer are applied to the flat tin-plate by comparatively simply constructed rollers, lithographing, or the printing of various inks on sheets of tin-plate, is accomplished on printing presses by the rotary offset method. Lithography is based principally on the fact that grease is attracted by grease and is repelled by water. The design on a roughened zinc plate is greasy, and by keeping the rest of the plate covered with a water film, only the design is permitted to take up new ink, fed from the top of the press, and to transfer it to a rubber blanket and thence to the tin plate. Lithographed sheets of tin-plate, as well as plain coated sheets, are then automatically conveyed through baking ovens. In most cases a varnish is then applied by the coating method described above.

New Can Developments

Development has been the life-blood of the can industry. During the last few decades the methods of can manufacture have materially improved and many new products have appeared in tin packages. Two of these are motor oil and beer.

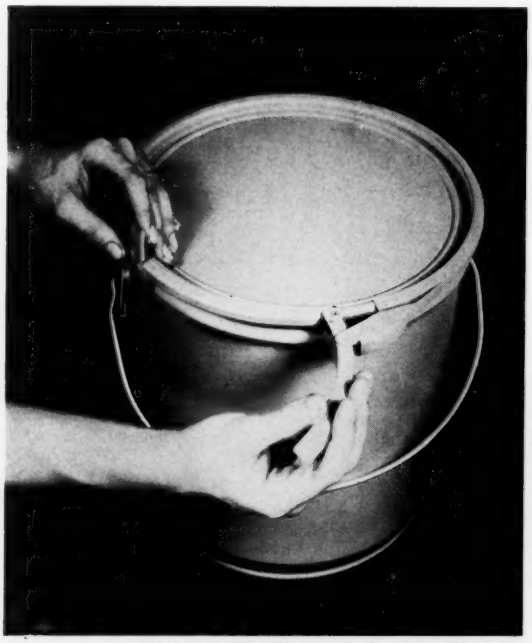
The one-quart and five-quart non-refillable, tamper-proof cans for motor oil have made it impossible to substitute an inferior grade of oil, or to give the customer a short measure. The result of this development is that today motorists everywhere demand motor oil in cans hermetically sealed at the refinery.

The can for beer undoubtedly would have been perfected long ago had it not been for prohibition. The effect of light on beer has long been a point of controversy and the use of cans—which, of course, exclude all light—eliminates any possibility of deterioration from this cause. The cans, furthermore, are light in weight and easily carried. They had an additional advantage in that they were convenient both for the dealer, who could stack them easily, and for the consumer, into whose new electric refrigerators they fitted more easily.

These latter advantages have been, in part or in whole, balanced by changes which have occurred in the shape or size of beer bottles in recent years.

Two types of beer cans are available. One has a flat top double seamed on by the brewer after filling and is opened with a special opener; the other is cap sealed and opens like a bottle.

10. Metal pail equipped with a new type of tight sealing lever closure, locking top and can together. Photo courtesy Crown Can Co.



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Seymour
PRODUCTS



Seymour Products Company

SEYMOUR, CONN. 122 EAST 42ND STREET NEW YORK CITY

DECORATED TIN CONTAINERS FOR CANDIES, NUTS, FRUITS, SHAMPOOS, SALAD DRESSINGS, OLIVE OIL, DRUGS, ETC.

SEYMOUR PRODUCTS CO. OFFERS A DESIGN SERVICE FOR YOUR SPECIAL NEEDS TO INCLUDE YOUR OWN IDEAS. PLEASE FEEL FREE TO CALL UPON US WITHOUT OBLIGATION.

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SPECIALTY METAL CONTAINERS

Among the items included under the general head of specialty metal containers are the following: triple compacts, double loosepacts, single compacts, rouge boxes, eyeshadow boxes, mascara boxes, lip-rouge boxes, many sizes and styles of ordinary slide-elevator lipsticks, swivel lipsticks, perfume dispensers, and containers for packaged face powder. All of these items are finished in various ways such as combination of enamel and metal finishes, as polished nickel, chrome and brass; brushed nickel, chrome and brass, all having varying designs dependent entirely upon the customer's requirements and specifications.

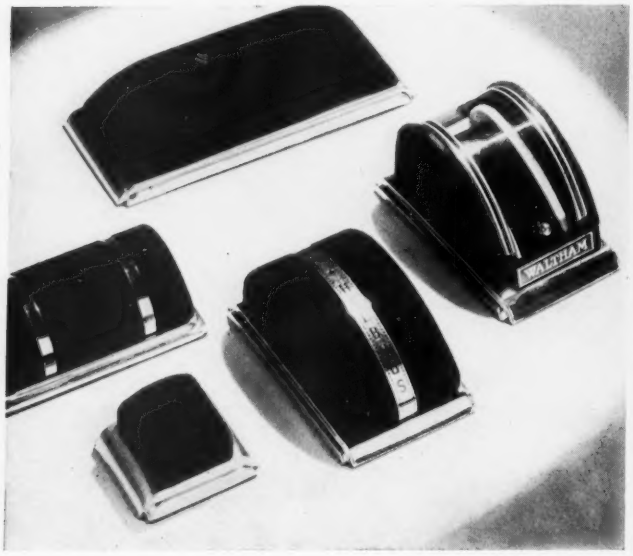
For years brass has been the standard material used as a base for these containers, but recently several items of aluminum have been introduced. Aluminum is considerably lighter than brass and products made from it are now available in an anodized finish which provides a wide range of colors with a bright glossy surface.

In cases where the quantity ordered is large, manufacturers of specialty material can supply containers made to order to meet the individual requirements of one customer's line. Many manufacturers, however, now carry stock or standard types of containers and lipsticks, making it relatively inexpensive for the user to obtain even specially individualized containers at modest prices and in medium quantities. For either containers built to special order or standard containers adapted to meet the individual requirements of the customer's line, most manufacturers are equipped to furnish a designing service. Suggestions from such a designing service usually cover a fairly wide latitude as to finishes and design yet keep the product within economical manufacturing bounds.

There are also boxes of metal form covered either with leather, with waterproof fabric coated and grained to appear as leather, velvet, or some other fabric, and lined with velvet or satin. Not only do these boxes provide ample protection for the articles contained, but they also serve as ideal displays.

Many articles such as delicate instruments, safety razors, measuring tools, sewing kits, cosmetics, manicure sets, and medals are displayed in boxes which serve as permanent containers. In this field these metal boxes have an advantage for they are made of materials that will withstand constant use over a period of years.

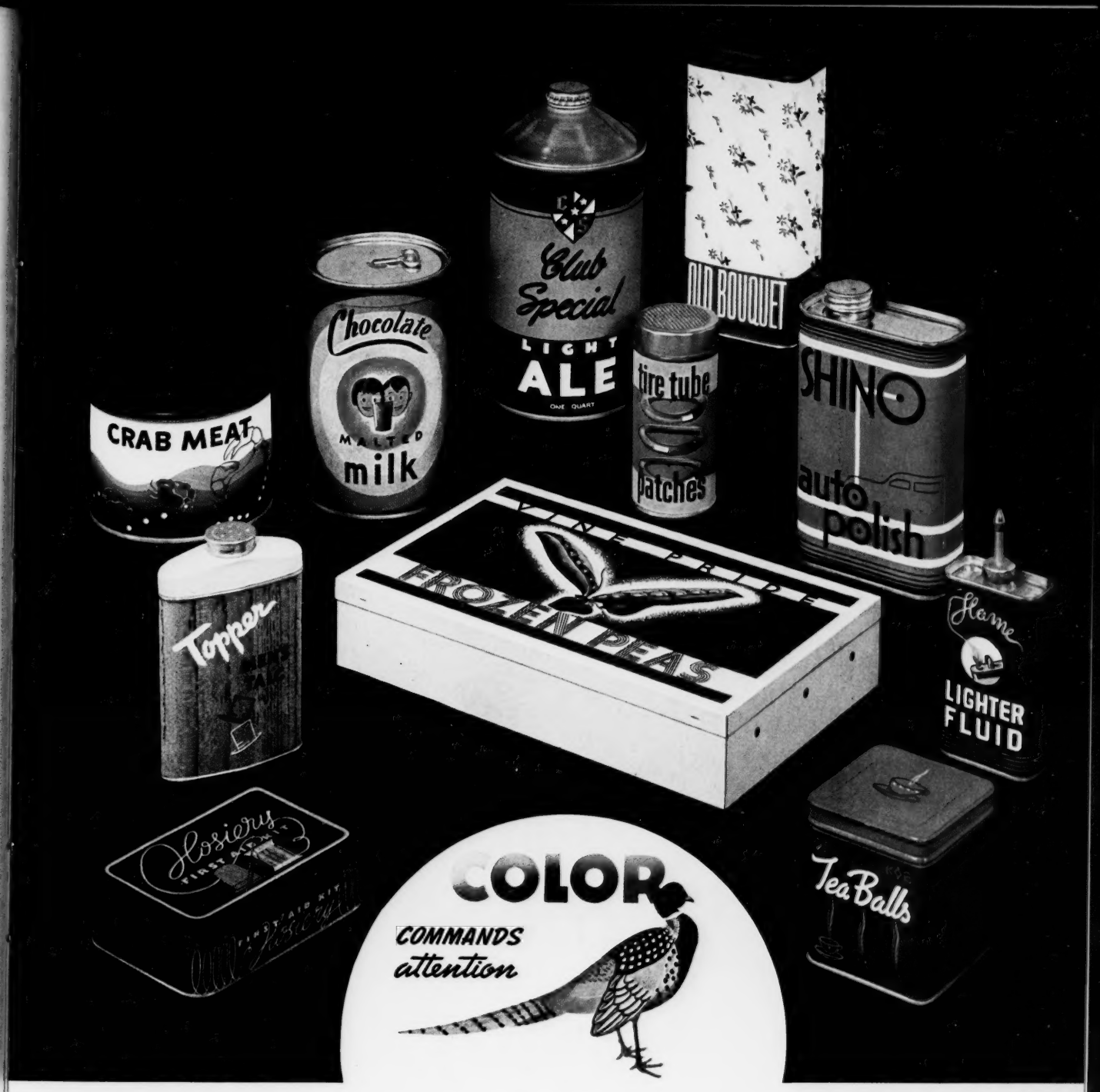
About twenty-five years ago the jewelry trade was offered a box made with a metal form and with an automatic spring hinge. The new boxes were covered and lined and had the appearance of expensive hand-made wooden form boxes but were offered at a price that jewelers had been accustomed to paying for lined paper boxes. At the same time a covering which simulated leather was perfected and available for use upon the metal form boxes. The new boxes appealed to the trade at once and became the standard of the jewelry trade in connection with low-priced jewelry. Later these metal-form boxes were perfected, the quality and appearance improved. Gradually the finer cases came to be used for high-priced jewelry and watches. During the war, and immediately afterward, many millions of these automatic spring-hinge boxes were distributed as containers for safety razors and most everyone became familiar with them. During



1. Metal frame boxes, velour and fabric covered—one with transparent top. Courtesy Arrow Manufacturing Co., Inc.



2. Combination enamel and metal finishes using nickel, chrome and brass. Photo courtesy Majestic Metal Specialties, Inc.



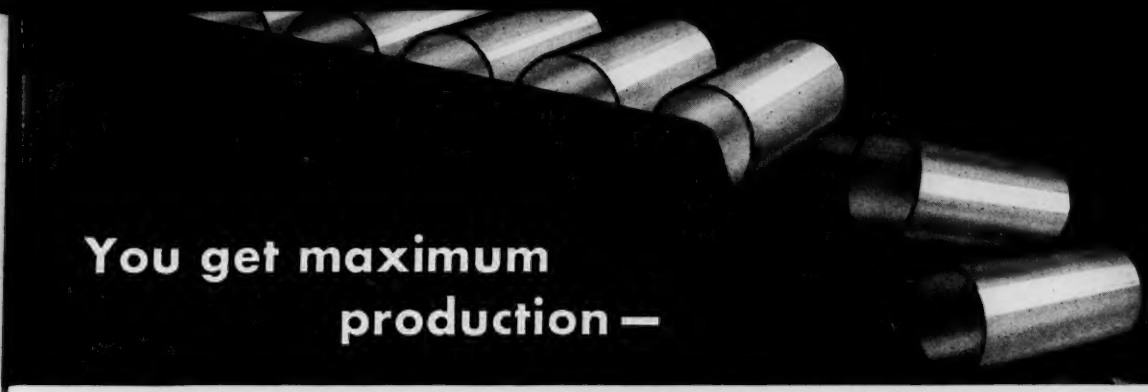
Color—and design in modern packaging is the new selling force of today. And rightly so, for the skillful use of color is a major factor in eye-appeal—the element which stimulates the consumer to reach out his hand toward the product...Of course, there are other important and practical factors, too, which have to do with the size, shape, construction of the package for automatic filling, safe shipping, convenient usage...These are but a few of the many points Continental's packaging experts check when they study your problem. Why not let them give your package a thorough "going over"? It costs nothing for our suggestions and they may mean much to you—in increased sales!

ONE OF A SERIES DEVOTED TO THE USE OF COLOR IN PACKAGING DESIGN. COPYRIGHTED, 1938.

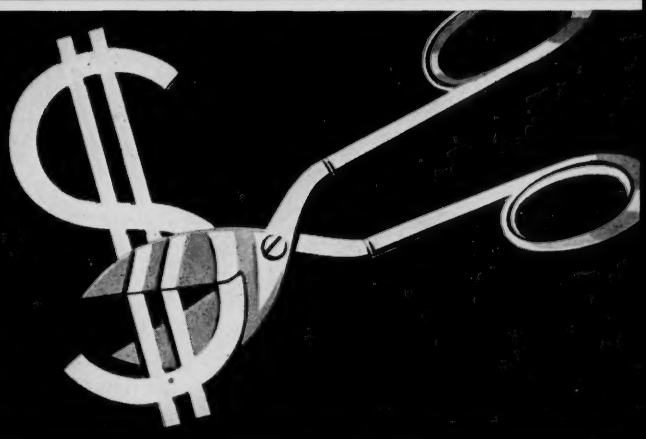
Continental Can Company

NEW YORK • CHICAGO • SAN FRANCISCO • MONTREAL • TORONTO • HAVANA

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You get maximum production—



low manufacturing costs—



and better looking containers with J&L TIN PLATE

You can give your customers better looking, better selling containers when you use Jones & Laughlin high-quality Tin Plate.

Can and closure manufacturers everywhere have found Jones & Laughlin Tin Plate uniform to gage, with a smooth, clean surface that takes the most intricate lithographic designs and colors with exactness. This means improved sales and repeat orders for your customers, as well as for you.

Because J & L Tin Plate is made of carefully selected steel, under the strictest metallurgical supervision, it has superior forming qualities which enable you to maintain highest production speeds, getting a maximum out-put of full formed containers and closures.

J & L Tin Plate—each sheet inspected and accurately assorted by trained operators — assures improved production, low manufacturing costs, satisfied customers and more sales.

For uniform high-quality containers and closures and greater profits, specify J & L Tin Plate.

J & L—ALWAYS MAKING FINER CARBON STEELS FOR NEW AND BETTER USES

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS
PITTSBURGH, PENNSYLVANIA

MAKERS OF HIGH QUALITY IRON AND STEEL PRODUCTS SINCE 1850

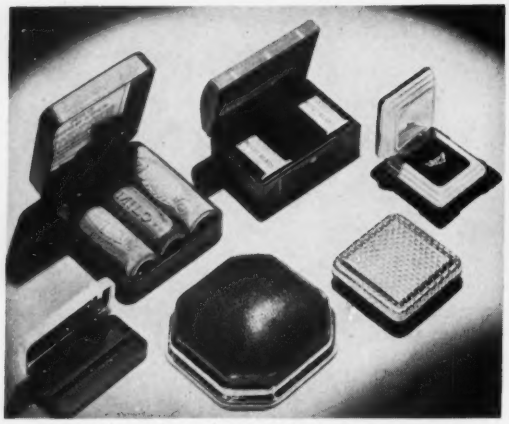




JALCOLD

A cold-reduced special-purpose plate with exceptional ductility for deep-drawing operations. Unusual flatness and unexcelled surface assure faithful reproduction of intricate design and color-lithography. For difficult draws and beautiful designs, use Jalcold.

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3. Hinge lid jewelry and utility cases. Courtesy Farrington Manufacturing Co.



4. Enameled and tooled metal cosmetic cases. Courtesy Scovill Manufacturing Co.

the last few years the original box has been modernized.

The styles vary from the plain dome-top box to the wide-edge colonial shape and the double step. Each can be decorated by the addition of gold tooling or plain or fancy metal edges, by metal bands, and many other display accessories.

The patented wide-edge box is an improvement over the wooden form colonial shape in that the wide edge may be in a contrasting material and color to serve as a decoration when the box is closed as well as when it is open. A variety of effects can be obtained by the use of different edges, domes, toolings, and colors, and with various styles of linings. Exclusive styles are possible, and even an exclusive size, when a very large quantity of boxes is required, may be obtained.

Covered metal-form boxes will stand up under abuse. The fact that tools and machines are used for the various processes of manufacture makes necessary the use of coverings and linings which will stand pulling and stretching during manufacture. The metal shell itself is, of course, sturdy and strong. The covering must be strong enough so that it can be stretched down over the sides of the box, stretched over the edge and tucked down inside without breaking or wrinkling.

COLLAPSIBLE METAL TUBES

by W. M. ROSE*

Collapsible tubes have been in use for a century. In the United States, today, they are consumed to the number of a half-billion annually. Considering these facts, a natural deduction would be that this form of container is highly standardized, fully developed, thoroughly exploited. Such a conclusion would be almost wholly wrong. Some standardization, as evidenced by the appended tables, has been achieved. Improvements in tubes and their appurtenances are continually being made. New uses are constantly being found. Fortunately, the manufacture of tubes is sufficiently flexible to permit of frequent and rapid changes to conform to design trends, changes in quantity-price policies and special merchandising and sales promotion plans.

Since there are some sixty different "standard" sizes, seven "standard" neck sizes, six "standard" types of neck openings, seven "standard" types of caps, five "standard" types of sealing, five different cap materials, four body metals and a dozen other minor variables, there is an infinite number of tubes that might be classed as standard. In addition, each printed design is different and only a few "stock" designs are in use.

With practically no exceptions, each order for decorated collapsible tubes is "special," requiring changes extending from metal foundry to box-making, including "set-up" of extrusion machines, re-plating, washing and re-inking decorating machines.

Advantages and Uses

No one type of container can fulfill the requirements for packaging all the different types of products. While it is quite true that collapsible metal containers have recently been successfully introduced as containers for effervescent salts, liquids, tablets and powders, the field in which collapsible tubes are of greatest service and use is that of products in plastic form: toothpastes, cosmetic creams, shaving creams, ointments, adhesives, toilet creams, polishes and the like. In special forms

* Sun Tube Corp.

WE ARE GEARED

For the Economical Production of Small and Medium Sized Lithographed Tin Containers





Small cans present special problems in designing as well as in production . . . problems ordinary can makers can't solve in the best and most economical way.

But Burdick has made a specialty of this kind of package. Our staff . . . our equipment . . . our plant . . . our way of thinking . . . are all marshalled to the better production of better small and medium sized tin containers.

Our design staff has the talent and experience necessary to create sales-winning tin containers. . . . They've designed hundreds of successful packages of this sort.

Our production facilities . . . large as they are . . . are made for one kind of production: top speed, top quality production of smaller tin containers. No waste, no lost motion—each machine is suited to its job, is the best machine available for that job.

Our staff of executives is the kind you like to work with, the kind of men on whom you can *rely*.

We'd like to refer you to some of our clients . . . some of the largest users of cans in the world . . . and scores of smaller firms who find the same great satisfaction with Burdick quality, Burdick service, and Burdick costs.

Write us.

BURDICK & SON, Inc.

ALBANY NEW YORK

XUM





1. Typical drug product tubes. Courtesy A. H. Wirz, Inc. **2.** Tubes for cements, foods and even bait. Courtesy National Collapsible Tube Co.

and with special applicators, they are preeminent in the application of medicaments to the eye, the nasal passages and other body cavities, and in the application of adhesives and lubricants.

From the standpoint of customer convenience and assurance, collapsible tubes possess qualities which no other type of container has. Proportion and shape promote ease of handling. The screw-top closure not only provides an effective seal and reseal for the protection of the tube's contents, but is easy to manipulate. Tubed products may safely be used by more than one person, since the product is adequately protected from contamination and the unused part of the product does not come into contact with fingers or other applicators that may carry dirt or infection. There is no danger of breakage or cutting by sharp edges. As tubes are not refillable, the customer may be assured that the contents are genuine, unadulterated. Since the volume of the product is easily discernible by inspection of the outside of the tube, the buyer is assured as to the full weight.

From the standpoint of the product manufacturer, tubes have much to commend them. In addition to relatively light shipping weight, and elimination of breakage, the problems of labelling and capping are solved by the fact that these operations are done by the tube manufacturer. Filling, sealing and cartoning may all be performed on machines that are largely automatic, so that "finishing" and packing labor costs are extremely low.

There is no great trick in drawing tube specifications. The dimensions are determined by the amount of product it is desired to pack or by the size of tubes used in similar price lines by established competing products. The size of the neck opening is, in large measure, determined by the plasticity of the product and the quantity ordinarily used in one application. Thus, "brushless" shaving creams are packed in tubes with large openings, opthalmic ointments in tubes with pin-hole tips.

Molded Caps

The original use of molded plastic caps was, to a large extent, influenced by the desire of a large tube-buyer to improve the appearance of his package. Except when the price of tin is abnormally low, the cost of molded caps compares favorably with tin, especially in the larger sizes. Molded caps are available in several sizes of stock patterns with round, hexagonal or octagonal top flanges. They are also to be had in a shape that is similar to that of molded bottle caps. Specially designed caps are also used on many products. Cap materials include the phenolic plastics—Bakelite, Durez, Resinox—in black, brown and darker shades of red, green and blue, and urea plastics—Plaskon, Beetle—in white and many light shades and tints, as well as the darker colors. Molded caps may have "ball" or "plug" seats, requiring no cap liners or, like metal caps, may be provided with liners of plain composition cork, foil-faced cork, or of cork or felt faced with black or brown alkali-resistant paper.

SUGGESTED TYPE OF TUBE FOR VARIOUS PRODUCTS

	Tin	Lead	Tin-Coated	Aluminum
Tooth Pastes	*			*
Shaving Cream	*			*
Cold Cream	*			*
Vanishing Cream	*			*
Cosmetics	*			*
Depilatories	*			
Vaginal Jellies	*			*
Ointments	*			*
Food Products	*			*
Artists' Colors and Paints	*	*	*	*
Tinting Colors	*	*	*	*
Inks		*	*	*
Adhesives		*	*	*
Cements	*	*	*	*
Belt Dressing		*		*
Engine Compounds		*		*
Greases		*		*
Stain Solvents	*	*		
Hand Soaps	*			*
Leather Softeners		*		*
Insecticides		*		

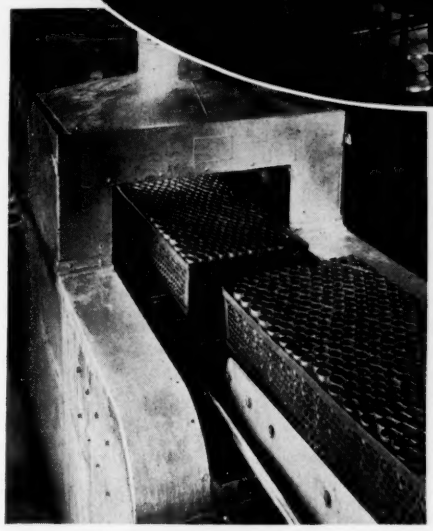
WHAT MAKES *Alcoa Aluminum Tubes* DIFFERENT*

*I. E., BETTER



NO GUESSWORK

Production is under strict laboratory control. For products that might react in any way with Aluminum, the laboratory has perfected interior coatings that are inert to their ingredients.



SANITARY INSIDE

All foreign matter is removed in a strong detergent bath which every Alcoa Aluminum Tube receives. Your product cannot be contaminated by any impurities.

BEAUTY OUTSIDE

This unique, modern decorating unit does a remarkable job of sharp, clean decorating, adding to the sales appeal of Alcoa Tubes.



Alcoa Aluminum Tubes are made in all sizes up to 2½ inches in diameter and 11 inches in length. They may be had in a variety of types of applicators and neck finishes to meet the needs of your product.

Users of Alcoa Aluminum Tubes include leading manufacturers of drug, cosmetic and toilet preparations, as well as hardware supplies, food products and miscellaneous articles that are offered in paste form.

ALCOA ALUMINUM

ALCOA ALUMINUM TUBES

For samples and prices, write Aluminum Company of America, 2150 Gulf Building, Pittsburgh, Pa.

XUM

Specifications for tubes require the following data:

DIMENSIONS: Diameter at the shoulder; length from shoulder to open end.
Size of neck or diameter of neck opening.
Wall thickness at shoulder.

CAP: Material and type of cap; type of liner.

DECORATION: Shoulder embossing, if any; coating and number of colors in printed matter.

METAL: Tin, tin-coated lead, lead or aluminum.

Reasonable manufacturing tolerances should be allowed in diameter, length and weight.

Design and Decoration

The cylindrical shape of collapsible tubes is dictated by the method of manufacture and the method of closing and sealing. Possibilities of variation in structural design are, therefore, nil. Design enters into the appearance of the cap and the embossed decoration on the shoulder, but it is on the "label" or side that design has fullest opportunity. While the fixed cylindrical shape imposes certain limits, these are the only limitations. Label designs may be of any character capable of reproduction by zinc etching, photogravure or half-tone. Decoration may be printed or embossed and printed in from one to four colors on a white or tinted coating. By the use of process plates, additional tints can be secured. The brilliant metallic surfaces currently so popular can also be produced on tubes with a high degree of fidelity. To equal the brilliance of lacquer-coated printing on paper, a similar coating, which is also alkali-resistant, may be applied over tube decoration.

STANDARD SIZES AND CAPACITIES OF TIN, TIN-COATED, LEAD ALLOY AND ALUMINUM TUBES

Diameter x Length	CAPACITY Fluid Ounces	C.C.	Usual Opening and Neck
3/8x2	3/4 dr.	2.77	No. 8
1/2x2	1 1/2 dr.	5.54	8-10
1/2x2 1/2	1 3/4 dr.	6.47	8-10
1/2x3	2 dr.	7.39	8-10
1/2x4	2 3/4 dr.	10.17	8-10
5/8x3	3 dr.	11.09	10-12
5/8x3 1/2	3 1/2 dr.	12.94	10-12
5/8x4	4 dr.	14.79	10-12
3/4x3 1/2	5 dr.	18.48	12-14
3/4x4	6 dr.	22.18	12-14
7/8x3 1/2	7 dr.	25.88	12-14
7/8x4	1 oz. 0 dr.	29.57	12-14
7/8x4 1/2	1 oz. 1 dr.	33.27	12-14
1 x4	1 oz. 2 dr.	36.97	16
1 x4 1/2	1 oz. 4 dr.	44.36	16
1 x5	1 oz. 6 dr.	51.75	16
1 x5 1/2	2 oz. 0 dr.	59.15	16
1 x6	2 oz. 2 dr.	66.54	16
1 1/8x4 1/2	1 oz. 6 dr.	51.75	16
1 1/8x5	2 oz. 0 dr.	59.15	16
1 1/8x5 1/2	2 oz. 2 dr.	66.54	16
1 1/8x6	2 oz. 4 dr.	73.93	16
1 1/4x4 1/2	2 oz. 0 dr.	59.15	16-20
1 1/4x5	2 oz. 3 dr.	70.24	16-20
1 1/4x5 1/2	2 oz. 6 dr.	81.33	16-20
1 1/4x6	3 oz. 1 dr.	92.42	16-20
1 3/8x5	3 oz. 0 dr.	88.72	20-28
1 3/8x5 1/2	3 oz. 4 dr.	103.51	20-28
1 3/8x6	4 oz. 0 dr.	118.29	20-28
1 1/2x6	4 oz. 4 dr.	133.08	20-28
1 1/2x6 1/2	5 oz. 0 dr.	147.87	20-28
1 1/2x7	5 oz. 4 dr.	162.65	20-28

Note:—It is possible to obtain even the smallest neck (No. 8) on the largest tube and also a large neck on small tubes (within limits so that the cap does not come within 1/16" from the diameter of the tube).

Collapsible tubes may be classified as follows:

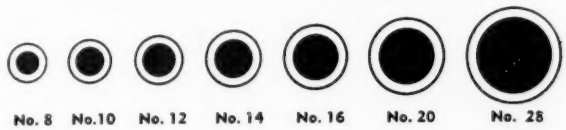
1. Pure tin tubes, are made of new virgin tin, alloyed with a small amount of copper or other suitable stiffener, in minute quantities. No adulterant such as lead or other soft metals is used in these tubes and they are essentially for use for any product going on or in the human body. Tin tubes are light, strong and durable; chemically inert; and perfectly suited as sanitary containers for foods, cosmetics including tooth pastes, shaving creams and other personal use products.

2. Aluminum tubes are lighter in weight and slightly stiffer than tin. Aluminum tubes require some research in the adaption to certain products, particularly those containing alkalies, but in general, they cover the same field as tin collapsible tubes. However, a new product should be tested for 60 days before tubes are adopted.

3. Lead tubes, known as lead alloy tubes, are made of pure lead with antimony or tin and antimony, and chiefly used for adhesives, shoe creams, rubber cements and articles where the contents will not be used on the human body.

4. Tin-coated tubes having a lead alloy base with an evenly distributed thin coating of tin on the inside and the outside, are made in such a manner that the two metals cannot be separated. These are the heaviest weight tubes (most manufacturers make these the same weight as lead alloy tubes) and seem to be declining in volume steadily in the collapsible tube field as the final appearance is not as good as pure tin or aluminum.

NECK SIZES AND OPENINGS—ACTUAL SIZE



Neck Size	Diameter of Thread	Actual Opening	
No. 8	.220"	1/8"	Ribbon, pinhole or diaphragm (Blind end puncture type) can be furnished as an alternate opening to the plain round type on all neck sizes except in aluminum. Special data should be obtained on this metal from suppliers.
No. 10	.250"	5/32"	
No. 12	.280"	3/16"	
No. 14	.330"	7/32"	
No. 16	.375"	1/4"	
No. 20	.438"	5/16"	
No. 28	.563"	7/16"	

CAP TYPES IN METAL OR MOLDED PLASTIC



Special Types of Tubes

In addition to the standard types of collapsible metal tubes there are available for various purposes certain applicators which may be applied separately to tubes, and others that are integral with them.

Tube-olosis CAN be cured!!



NATIONAL COLLAPSIBLE TUBE CO. PASSES ON THE CURE TO YOU!!



"Tube-olosis" (in case you didn't know) is the dread ailment of inferior tubes—and the constant headache of manufacturers. General symptoms: lagging sales, poor design, messy leakage. Causes are, in general, lack of attractiveness, character, and ingenuity in a tube . . . poor construction . . . deficient quality of materials.

BUT NATIONAL can vaccinate you against this dread pox. National can supply you with a tube that is ingeniously designed and decorated to make your product an instant eye-catcher on any shelf. . . . National can add the many functional "extras" that make the difference between a sale and a walk-out. And National can give you the sound construction-high quality "can" that means satisfactory use of your product . . . and re-sales.

HERE ARE FOUR DIFFERENT TYPES OF TUBES PRODUCED BY NATIONAL

SINGLE DOSE SHELL . . . for products in powder form

SINGLE APPLICATION TUBES . . . for liquids

NO-KAP CLOSURES . . . (pioneered by National) a non-losable cap

PEDESTAL CAP TUBES . . . all the advantages of a bottle, plus the economies of a collapsible tube.

DESCRIBE to us your problem, and we'll provide the answer.

NATIONAL COLLAPSIBLE TUBE CO.

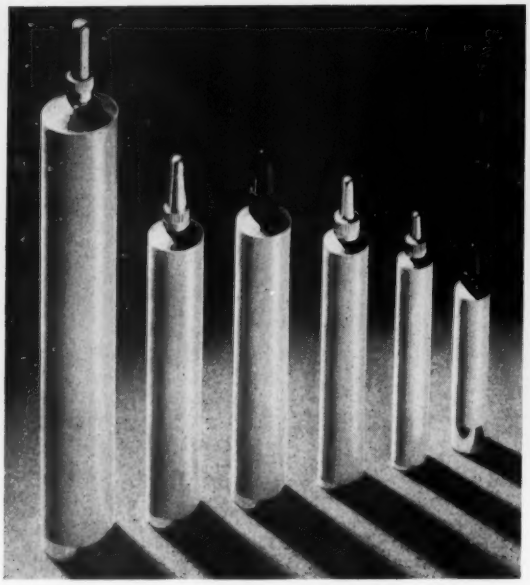
PROVIDENCE RHODE ISLAND

New York Office: H. R. M. Gordon, 331 Madison Avenue • Telephone VAnderbilt 3-2258

San Francisco: P. D. Bowley, 420 Market Street

REPRESENTATIVES IN OTHER PRINCIPAL CITIES

XUM





3. Caps of metal or plastics for eye tip and nasal tip tubes. Courtesy Standard Specialty and Tube Co. **4.** Single dose tubes for various products. Courtesy The Sun Tube Corp.

Eye tip: Eye-tip tubes are often called opthalmic tubes and are used for eye preparations. These are available in tin or lead, and tin tubes are recommended for use if the preparation is to be used on or near the eye. Lead is only suitable for light lubricants or similar use in conjunction with eye-tip tubes.

Nasal tip: Nasal-tip tubes are made in different types and are supplied in tin or lead, with tin tubes suitable for nasal jellies, ointments, and any other preparation used on or in the human body, and with lead tip tubes supplied for oils, greases, rubber cements, and other commercial purposes.

Screw-eye: Screw-eye tubes are furnished in tin, lead, or aluminum and are suitable for rubber cements, pyroxylin cement, adhesives and similar commercial uses.

Plug, pin, etc.: Special tubes are made with heavy conical shaped plugs as a closure, and also with pins for insertion in the neck. These types are used chiefly with adhesives, library pastes, and similar products.

Pile pipes: Pile pipes are available in pure tin or aluminum in sizes which fit standard necks and are obtainable with either side or end openings or both. Other special types of pile pipes, vaginal pipes, and applicators are also available.

Applicator tubes: A recent development is a self-contained applicator tube which is especially suited for pile ointments and combines the separate tube and pipe in one package. In this there is no separate applicator to become lost; there is nothing to attach and the container is ready for instant use, and a long slip cap covers the applicator, keeping it free from dust and dirt.

Vaginal pipes: These are made of pure Straits tin, specially treated, and are safer and more sanitary than those made of other material. They can be supplied straight or bent at almost any angle.

Single Dose Tubes

The most recent development in tubes, or better, perhaps, in collapsible containers, is possibly the most significant and important in the history of the industry. This development is significant in that it involves, for many products, a new theory of merchandising, and important in that the traditional field of collapsible tubes—products in paste form—is broadened to include liquids and powders as well as pastes. The development has included not only the basic neckless container, but new methods of filling, sealing, opening, and packing.

Intrinsically, the new type of container—referred to in the trade as "unitainer" or single dose tube—is a collapsible metal tube, without neck or cap, designed to contain a quantity of product sufficient for one dose, application, or serving.

The inherent qualities to which reference is made above include the stability of the sealed container, which is seamless except for the hermetic closure, affording complete protection of the product against moisture, light, and air. Of almost equal importance is the ease and convenience in use which have largely promoted customer acceptance. The interest of the manufacturer is served by reason of the fact that unitainers are unbreakable, light in weight, proof against re-filling or substitution, and economical to use in that labels and labelling, caps and capping, are entirely eliminated.

The use of single dose tubes or unitainers has been of sufficient extent, and the products packaged in them sufficiently varied, to indicate that this container acts as a stimulant to sales. This has been ascribed to the convenience of the "pocket package," to the assurance of the freshness and genuineness of the product, and, in some cases, to the relatively lower price of the unit-quantity package. In certain cases—barber shops, beauty shops, restaurants, and soda fountains, for example—the unit of sale packed in single dose containers has reduced wastage without in any way reducing the quality of the treatment or curtailment of dosage.

STEP OUT IN FRONT

Style up to SELL!



PACKAGE your Brands to step ahead of the Parade - to be FIRST at the point of purchase! . . . . ★ STYLE! Originality! in CONTAINER design and decoration set the pace for quickened SALES. . ★ "NATIONAL" sets an individual style in Container-making. Its SERVICE is resourceful, enthusiastic and capable.

Step Ahead! **with "NATIONAL"**

NATIONAL CAN CORPORATION

SUBSIDIARY OF McKEESPORT TIN PLATE CORPORATION

EXECUTIVE OFFICES • 110 EAST 42nd STREET • NEW YORK CITY

Sales Offices and Plants • NEW YORK CITY • BALTIMORE • MASPETH, N. Y. • CHICAGO • BOSTON • DETROIT • HAMILTON, OHIO

XUM

ALUMINUM CONTAINERS

by G. H. FITCH*

Aluminum containers have found an extensive use as a packaging medium for a variety of products because of their attractiveness, imperviousness to light and moisture, and their non-deteriorating and non-toxic properties. In addition, their strength and lightness is an important advantage to packers and shippers, for such containers are not subject to breakage nor do they entail prohibitive shipping costs.

By means of the impact extrusion and drawing processes used to produce aluminum containers, numerous shapes and sizes are available. For this reason, the container can be more or less adapted to the product to be packaged even though the product may be of a somewhat unusual shape, type or texture. Whether the impact extruded container or the drawn container is the most economical to select depends, obviously, upon the design of the container required. In most cases, aluminum cans of shallow depth and uniform thickness can be most economically produced by drawing, while the deeper containers are more readily formed by the impact extrusion process which consists of "squirting" the metal in its highly plastic form around an extrusion punch, thus forming a shell from a metal slug.

To create an attractive appearance, the containers can be enameled, lithographed or given a hard, durable oxide coating by the "Alumilite" process. Any one or more of these methods of finishing can be used to give pleasing effects in natural aluminum or colors. The "Alumilite" process imparts an especially attractive finish to the containers in that it combines the bright metallic luster of the natural aluminum with the plain or colored appearance. Effects in natural aluminum can also be obtained by polishing, dipping, or satin finishing.

Aluminum containers are particularly suitable for packaging drugs and cosmetics because of the eye-appeal that either the plain or colored finishes afford. In some cases, distinctive combinations of aluminum and glass have been used for products of this type. Small combination units consisting of holders and covers have been used for such items as styptic pencils, lipsticks, shaving soaps, and inhalants. Aluminum pill boxes and vials offer convenience to the consumer in that they may be conveniently carried in the pocket or purse. Aluminum's inherent properties of lightness, strength, chemical inactivity to most materials, and non-toxic properties have been instrumental in bringing about the use of aluminum bottles for packing and shipping essential oils, food extracts, and other similar products. Other uses for the containers are for such applications as flashlight and cigarette cases.

Subsequent threading, beading, piercing, knurling, fluting, and spinning operations can be performed on aluminum containers to further adapt them to the individual packager's requirements. Sizes up to four inches in diameter and ten inches in height can be produced.

* Aluminum Co. of America

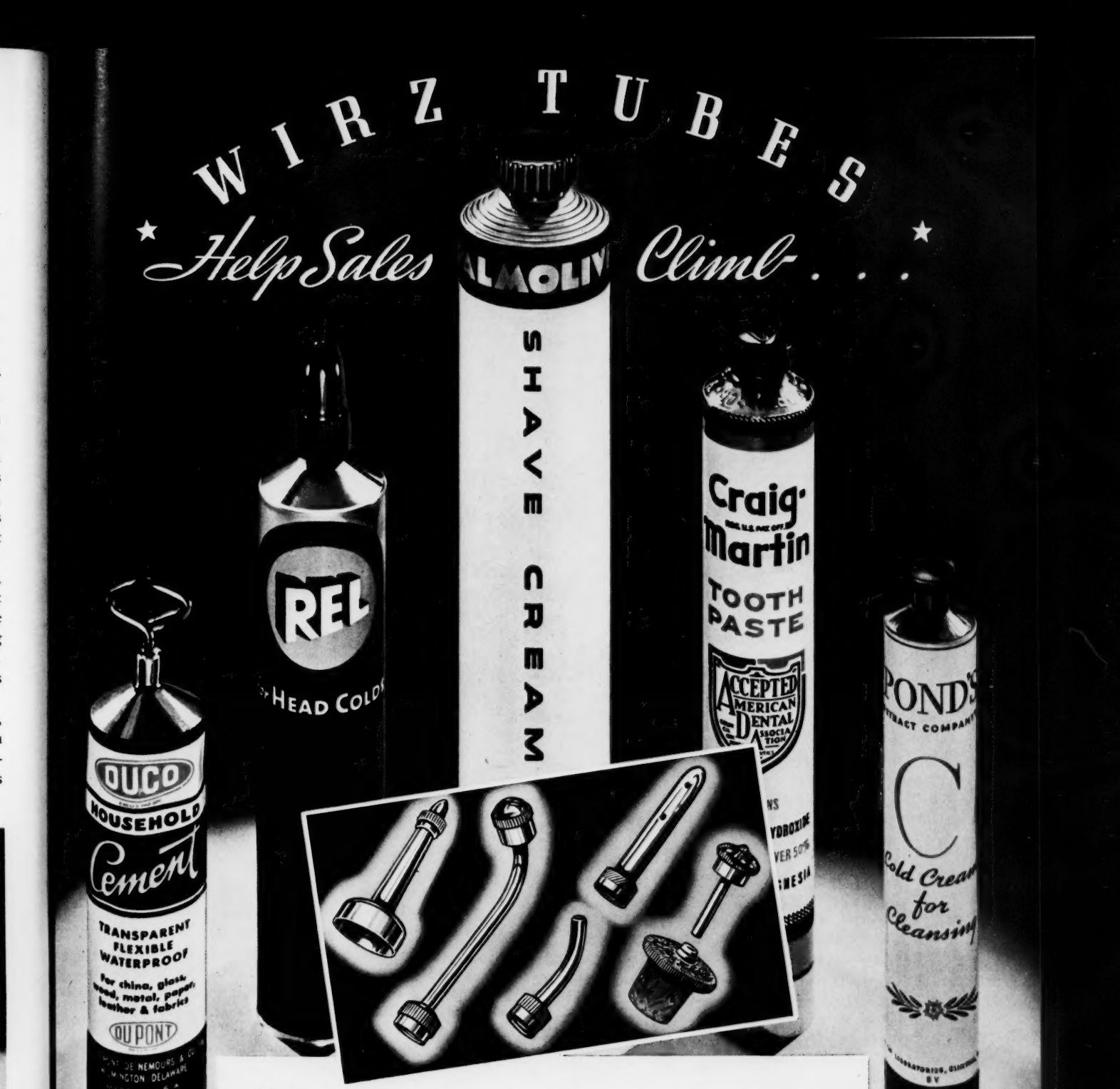


A few of the many types of available aluminum containers.

XUM

WIRZ TUBES

★ Help Sales Climb . . . ★



WIRZ tubes stand the test in the consumer's hand. That's why year after year so many of the public's favorite products are packaged in WIRZ tubes. Production and sales executives realize WIRZ tubes have an extra merchandising value which pushes sales curves upward.

WIRZ tubes fit into modern marketing and merchandising . . . they give sanitary protection, convenience, and eye appeal . . . they help sales climb. Ask our representative to show you how. There's no obligation.

Collapsible Metal Tubes. Protective Internal Wax Coating. Westite Closures.

Metal Sprinkler Tops. Household Can Spouts and Applicator Pipes.

A. H. Wirz, Inc.

Established 1836

CHESTER, PA.

NEW YORK, N. Y.	CHICAGO, ILL.	DANVILLE, CAL.	MEMPHIS, TENN.	HAVANA, CUBA
30 E. 42nd St.	80 E. Jackson Blvd.	A. C. Spilker	Fosshage Bros.	Roberto Ortiz Blanco

XUM

FIBRE-BODIED CANS

The fibre can bridges the gap in the packaging industry which formerly existed between the paper carton and the tin can. Its commercial uses fill the needs not serviced by either of these industries, although in some cases it overlaps one or the other. However, it has set up a useful field of its own for numerous products demanding an attractive, rigid, and economical container, capable of protecting the contents from deterioration, contamination, substitution, or spoilage. A fibre can may be considered for any dry product, such as spices, foods, drugs, cosmetics, or chemical products, that does not require a hermetically-sealed container, or that can put to sales advantage a more attractive, sturdier package than a paper bag or folding carton. These principles of use apply not only to powdered food, drug, or chemical products, but equally as well to such miscellaneous items as automotive or hardware parts, rubber goods, surgical dressings, and many others.

Producers of packaged goods know that in order for the container to be successful it must appeal to the consumer as attractive, easy to open and reclose, and it must provide protection to the contents before and after it is opened. With the use of a well-designed and lithographed label, the fibre can is a smart modern container, appealing in appearance. Various styles of fittings, trimmings, and openings are available that are designed to facilitate the ease with which the consumer may open and reclose the container.

The bodies of fibre cans are constructed of specially made fibre-board that adequately protects the contents from deterioration in all climates.

The fibre can industry is divided into two general classifications: one branch manufactures containers to hold products which are dry in substance; the other and newer branch is devoted to the development of fibre packages to hold liquid or moist products. Very few manufacturing plants are set up to properly service both liquid and dry products, since the containers are dissimilar as to construction and manufacturing methods. Both branches of this industry have wide and varied assortments of styles, types, and sizes of containers, which are specially designed for particular commodities, or for various products requiring similar containers.

The fibre cans used for dry products may be divided into nine distinct types, all of which are made in a wide variety of sizes and shapes. The physical construction of each type will vary somewhat, according to the ideas and equipment of the manufacturers. In general terms, these types are as follows:

Paper Cap Cans

The paper-cap fibre can is generally confined, because of technical problems, to cylindrical shapes for commercial use, although one or two oval cans have been marketed. This type can is made with fibre-board ends, called paper caps, that are either removable or sealed on. The top end is frequently fitted with a pouring or sprinkling device. The caps are furnished in a variety of colors and, within limitations, may also be embossed or printed. Body labels may be applied either by the can-maker (putting them on underneath the cap-ends) or by the user after filling. In the latter instance, they are placed over the flange of the cap and seal the package. This type package makes an excellent container for table salt, bread crumbs, cereals, or other products requiring the least expensive type of container that will satisfactorily hold the contents.

Friction-Plug-Top Cans

The friction-plug-top fibre cans have metal ends seamed on the body, and are manufactured with round, oblong, oval, or square bases. The plug is securely held in place by friction, and yet may be pried loose without annoyance. The throat of the friction-ring may be curled, eliminating the possibility of cutting oneself on a raw edge. This is particularly desirable in a top where the opening is large enough to permit the hand to enter. Sometimes the plug has a special lifting device to facilitate opening; otherwise, a coin or some such improvised lever is required to remove the plug. This type can is generally used when a tight reclosure is desired, and is an acceptable container for baking powder, cocoa, tea, spices, fertilizers, and similar products.

Metal Slip-Cover Cans

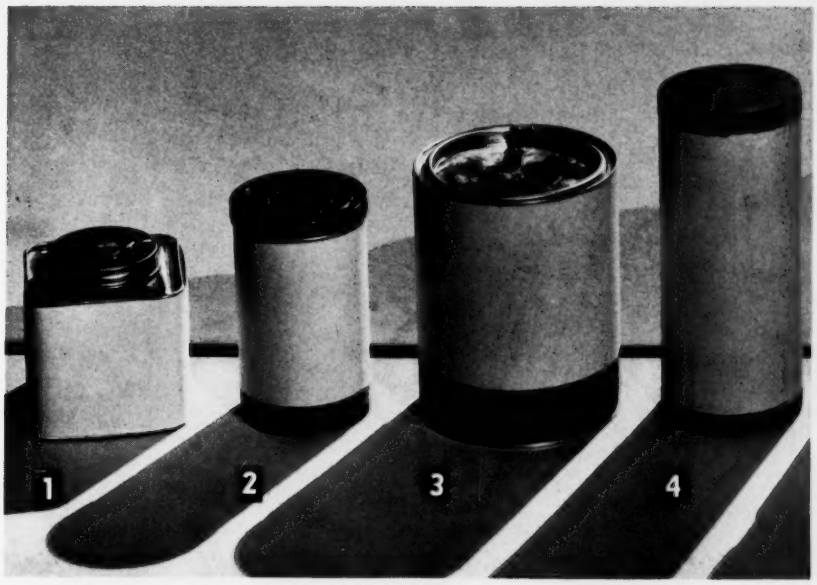
The metal slip-cover fibre can is preferably made on small oval or round bases, and is an economical container for products requiring a full opening. The cover must be furnished with a raw edge if the labels are to be applied over the flange after filling; otherwise a curled edge flange is desirable. The ends can be decorated or embossed to suit the purposes of the user.

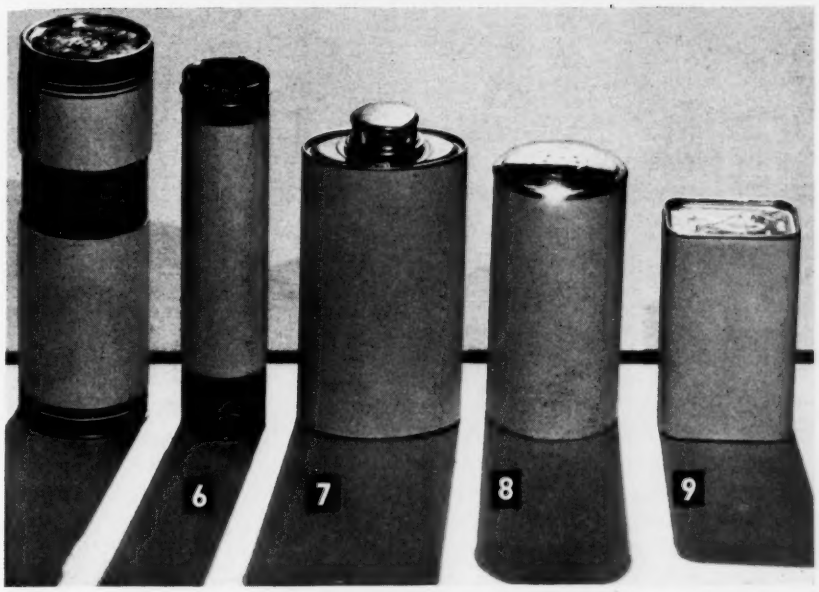
Interrupted-Thread-Cover Cans

The interrupted-thread-cover fibre can is an unusually fine container for quality products. The covers are easily removed by a slight twist of the hand, and yet are securely locked on when assembled. The full opening in the top permits easy access to the contents. This container may also be furnished with a drumhead seal assembled in the top, making the can tamper-proof.

Closed-Top Cans

Cans of this classification have metal ends with a closed bottom and top seamed on, and provide a tamper-





Styles of fibre containers for dry products. 1. Screw top can. 2. Interrupted thread cover can. 3. Friction plug top can with "Lev-A-Lift" opener. 4. Paper cap can. 5. Telescope can. 6. Metal slip cover can. 7. Raised neck can. 8. Planetary top can. 9. Closed top can. Photo courtesy American Can Co.

proof non-refillable package. The tops may, or may not, be fitted with revolving or push-slide dredges, pouring spouts, and semi-perforated knock-out holes. Containers of this type make an excellent package for scouring powder, spices, birdseed, insecticide, powdered hand-soap, etc. They are also widely used as a sealed container for automotive parts such as coils, piston-rings, distributors, filters, etc.

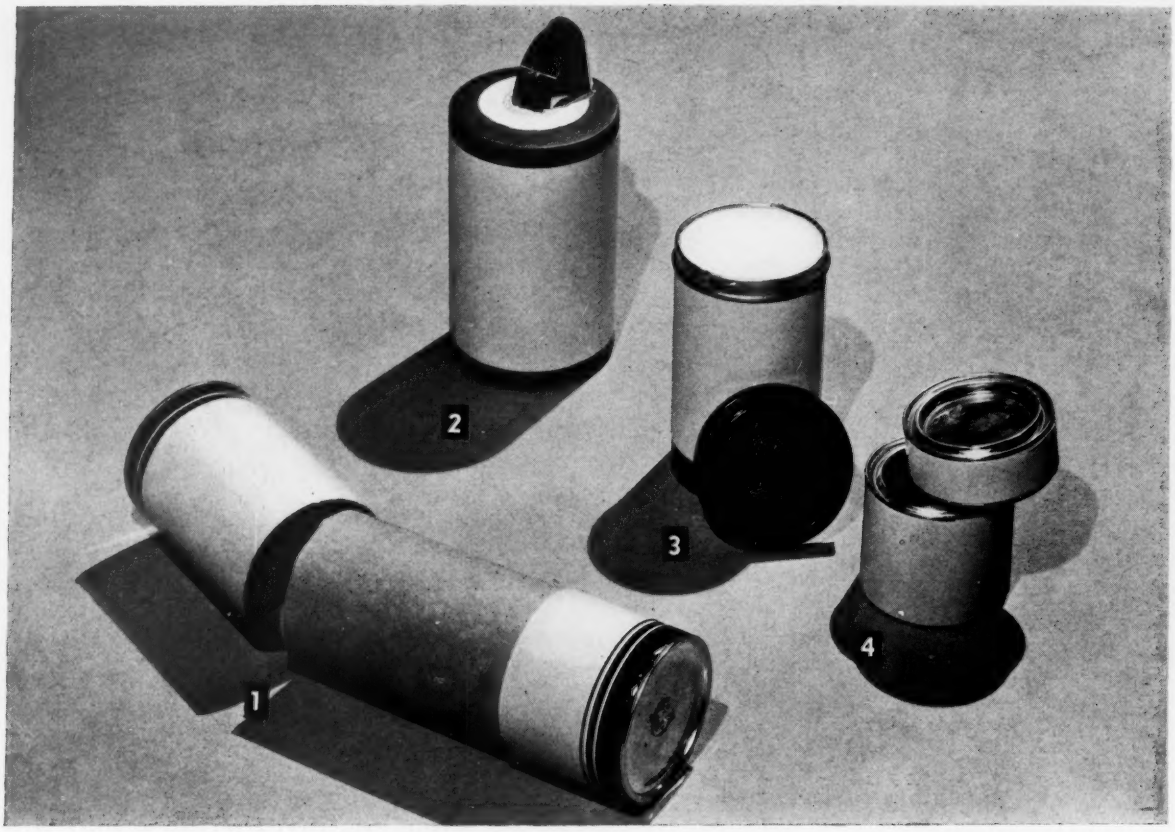
Planetary-Top Cans

The tops of these cans are two-piece, consisting of an undercap crimped on to the body, and a revolving overcap assembled to the undercap. The overcap is made of nickeloid to provide a high-lustre end of striking appearance. The tops have a variety of sifter-hole arrangements, and this package is excellent for such products as talcum powder, insect powder, grated cheese, deodorant crystals, and fire-extinguisher chemicals, permitting them to be removed conveniently.

Raised-Neck-Top Cans

The top of this classification of fibre cans consists of a protruding neck assembled to the breast of the can. The neck is perforated with single or multiple openings, depending upon the powder contained in the package, and is especially designed for packaging talcum or tooth powder. The neck is fitted with either a slip-on or revolving overcap to provide a closure. It is generally used on round, oval, or oblong bases up to one-pound capacity, with a wide selection of tops and fittings.

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Special use designs of fibre containers. 1. Telescope type package fitted as an insecticide spray gun, equipped with a dredge opening and a felt bottom on the inner tube. 2. Paper top can with metal pouring spout for cereals, salt or birdseed. 3. Interrupted thread top can with inside paper cover sealing the contents. 4. Double friction plug top can forming a two-compartment package for related products such as photo developing powders. Photo courtesy American Can Co.

Telescope Cans

These packages are made in three segments: An inner tube, and upper and lower outer tubes. The fibre bodies are fitted together so that the outer tubes act as closures for the inner tube. This package is frequently used as a tamper-proof mailing case, and the address label may be applied over the joint to seal the package.

Screw-Top Cans

There are two styles of screw-top cans, one having the fibre body threaded outside at the top, and the other type has a threaded neck which is thrown up from a crimped-on breast to which the cover is assembled. Screw caps are generally knurled and curled.

Body Construction

It is easy to gather from the explanation given above on the types of fibre cans that they are classified according to the style top assembled to the body. In all cases the bodies are built up by laminations or plies of paper, either spirally- or convolutely-wound construction. Regardless of the base shape, the bodies are always straight sides, never conical or tapered.

Spirally-Wound Fibre Can

The construction of the body of a spirally-wound fibre can permits the use of many different fibres and adhesives in its production, which makes it adaptable to many purposes. In the manufacturing process ribbons of fibre are wound around a steel mandrel, the diameter of which is the same as the inside diameter of the can to be produced. As these ribbons are wound on the mandrel angularly, one over the other, and so placed that the top one overlaps the joint on the under ply, there can be produced a tube of any desired length and construction, from two plies of one kind of fibre to many plies of several kinds of fibre, resulting, as in the case of the two-ply tube, in a thin tube, and, in the case of the multi-ply, a very heavy tube, or core, of any strength desired.

As the original tube, from which the can bodies are made, is composed of several individual ribbons, it is self-evident that almost any combination of material can be used, and, as the adhesive is applied to each individual ribbon, almost any adhesive can be used for any particular ply of ribbon. For instance, a body can be produced having the first ply of parchment paper, the second ply of almost any thickness of fibre, a third ply of different material, while a fourth ply can be a ribbon of colored paper, which would be wound on the outside

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VICTOR

ALUMINUM CANS

COLLAPSIBLE TUBES

Turn to page 267 for information on plastic caps

The Victor Aluminum Can is an ideal package for pills, capsules, tablets, etc., with slip cover or screw cover that does not grip. When you write for samples tell us the nature of your product. There is a type and size for every requirement.

Victor Tubes are leak-proof, and air-tight, beautifully decorated and made in aluminum, tin, tin-coated and lead. Are you contemplating another product or a change in your present tube design? Our Creative Department will be glad to cooperate.

Victor Metal Products Corp'n

196 Diamond Street, Brooklyn, N. Y.

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of the tube and in the finished product form a colored can. Any adhesive may be used on any one of these ribbons, such as applying asphalt to the second ply (the first ply is generally applied dry) to adhere the inside parchment to it, thereby forming a body for a can, which will be lined with parchment and protected against moisture with an asphalt coating between the parchment and the can body proper.

In the spirally-wound fibre can, almost any materials can be used, such as glassine, manila, kraft, straw chip, etc., and a ply of these materials can be introduced at almost any place in the body, to meet the requirements for which the can is intended. Spirally-wound cans can only be made with round bodies, because the ribbons of fibre must slip around the mandrel, but this characteristic has its merits, as it permits continuous production, at a high rate of speed, with the resultant low cost of manufacturing. After the can-bodies are wound into tubes, the length of which are determined by multiples of the length of the can being made, the tubes are hand labeled with strip (multiples of single labels made in one strip) labels and then cut into the proper can-length.

Convolutely-Wound Cans

In producing the convolutely-wound fibre can an automatic machine is used and the ribbons are wound squarely on a mandrel, which revolves the required number of revolutions to complete the body, giving the necessary number of plies of the fibre ribbon. The ribbon is automatically cut and the can-body moved along the mandrel to the position where the label is applied, which operation is accomplished during the time the next can-body is being rolled. The body is then ejected from the mandrel in completed form, ready to receive the proper caps, or ends, which can be either fibre or metal in the round body, but metal only on irregular shapes.

The shape of the body depends upon the shape of the mandrel, which can be either square, oval, oblong, hexagonal, triangular, or almost any shape where a ribbon of fibre can be wrapped tightly and fitted snugly to the mandrel. Corrugated bodies are not possible, as the fibre cannot be held in the grooves while winding.

The convolutely-wound can has one characteristic which limits it to some applications. It is made completely of one ribbon of fibre and one adhesive, therefore cannot be lined with parchment or glassine. Whatever material is used in the ribbon must be used throughout the entire can-body.

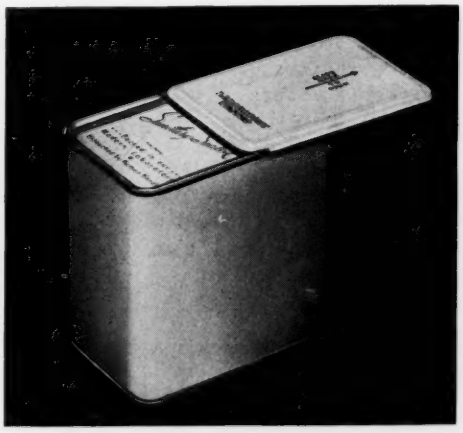
The convolutely-wound can follows closely the application of tin cans, with the exception of liquid packaging. It follows in nearly all the shapes of the metal cans, except the corrugated bodies. As the metal ends are seamed to the bodies, the same as on metal cans, most of the fittings used on metal cans can be adapted to fibre-body cans.

Choosing the Fibre

There is no one standard body construction suitable for all the various products put into fibre cans. The right fibre materials must be worked out in the laboratory for each specific product to be packed. Products which are hydroscopic, or which will deteriorate if exposed to humidity, are put into cans with damptite, moistureproof bodies. Some products, such as spices, have a high percentage of essential oils which require specially constructed greaseproof bodies. The use of the right fibre materials is highly important to the success of the package and, because of the multiplicity of materials and their possible combinations, it is necessary for the buyer to rely upon the skill and experience of the can-maker to give him the proper body construction.

Labels

The use of a well-designed and properly manufactured label is of vital importance in order to secure the maximum sales advantage of a fibre can. Except for the ends, the label is the only decoration on the package, and is relied upon to build up its external appearance; therefore, the services of a good label house are essential if the best appearance is desired. In addition to the design, it is highly important that the label be made from the correct paper stock; otherwise it will be impossible to apply it without fault to the can body. A well-made label should apply smoothly and without blisters or wrinkles. Unless there is a special reason for doing otherwise, the label should be varnished or lacquered, as this keeps the printing surface clean and gives a soft lustre to its appearance. Moistureproof or greaseproof lacquers are used on labels for certain commodities. The label is an integral part of the container; therefore the can manufacturer furnishes complete specifications covering the stock and layout of the label, and co-operates closely with the label printer. While most labels are printed on lithographed stock coated one side, some striking effects are secured by using embossed or fancy-design papers. This applies especially to talcum-powder cans. Foil papers are also used because they give a very novel appearance and excellent protection to the package.



A metal slide top and a paper sanitary seal are utilized on this fibre can to achieve sanitation and ease of opening. Photo courtesy of The Cordiano Can Co., Inc.

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SECTION SIX

GLASS CONTAINERS AND CLOSURES

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CLOSURE LININGS

PRINTING ON GLASS AND PLASTICS

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GLASS CONTAINERS

by T. K. ALMROTH*

Glass, one of the oldest of fabricated materials, continues to be one of the foremost in modern packaging. Each year new products are packaged in glass and each year the use of other glass packed products is extended. Back of this trend is the knowledge and research of the glass container industry. The Glass Container Association and several of the individual manufacturers maintain elaborate research laboratories in which developments and improvements in glass containers are constantly being made.

Under the stimulus of demand for new types of glass containers, new designs, new closures, and special features to meet the particular problems of transferring various products to glass, the industry has made many important advancements.

Retailers, as well as packers, also know that glass, through its brilliance and clearness actually enhances the appearance of a product, displays it to good advantage, gives it quality appearance, and assures the consumer that the product is protected against crushing, spoilage, and contamination.

Packers and retailers have likewise learned that consumers place great value upon the convenience of glass containers. They can see how much of a product they have on hand. They do not have to transfer contents to another container. They know when it is time to re-order their necessary supply.

There is also a great advantage for the packer in the individuality he is able to give to his glass packages. Glass lends itself to an almost unlimited variety of shapes and treatments. The result is a package that conforms to the product in design and color combinations, that has eye-appeal and the suggestion of cleanliness and convenience.

From the research and design facilities of the glass manufacturer equipped to render such complete service to his customers have come amazing developments in the past two years.

In the field of liquor ware, the trend toward plain shapes continues. These shapes are particularly in demand for bonded whiskies because of their association with old traditions. The plain brandy rounds and dandy ovals are also found especially practical for use in the high-speed bottle lines. The plain rounds are preferred by many bartenders because they are deemed more practical in dispensing.

An outstanding development in the wine field has

* Advertising Manager, Owens-Illinois Glass Co.

Food containers. **1.** Half-gallon glass handled jug. **2.** Pint grape juice. **3.** 14-oz. catsup. **4.** Tall olive. **5.** 1-lb. coffee jar. **6.** Cherry bottle. **7.** "Stubbie" juice bottle. **8.** Thin-blown marmalade tumbler. **9.** Applied color decorated thin-blown packing tumbler. **10.** Light weight, wide mouth packer. **11.** Wide mouth packer.





Dairy containers. **1.** Straight neck pint milk bottle. **2.** Thin-blown cottage cheese tumbler with applied color decorations. **3.** Straight neck quart. **4.** Plain thin-blown cottage cheese tumbler. **5.** Quart sour cream or cottage cheese jar. **6.** Straight neck half-pint milk bottle. **7.** Quart cream-top milk bottle. **8.** Orange juice bottle.

been the domestic production of push-up champagne bottles of traditional hand-made shape on automatic bottle machines. These bottles are found to be actually superior to the European hand-made bottles in strength, quality, accuracy, and uniformity. American producers using these champagne bottles report breakages running less than 3 per cent during the entire period of champagne processing, while on the imported second-hand bottles formerly in common use they had breakage exceeding 15 per cent.

In the brewing industry the introduction of the lightweight Steinie bottle created a sensation in packaging, and materially assisted brewers in meeting the requirements of new marketing conditions. The new Steinie shape has been applied to quarts, half, and full gallon containers for pasteurized beer. It has also been used for a host of other products not originally contemplated as coming within its field—products that likewise benefit by its compact shape and ease of handling.

The success of the Steinie beer bottle was the forerunner of a trend to lighter-weight glass containers in other fields. Containers for food packages particularly lent themselves to lighter weights. Freight costs as a consequence were reduced materially. This development has aided materially in expanding the market for glass packed products.

Of particular interest in the food industry is the new 40-oz. juice bottle. This new container is light in weight, economical, and very practical. It is especially suitable for tomato and fruit juices.

Along with jars of lighter weight there is a decided trend to modified openings in wide-mouth jars. For no particular known reason wide-mouth jars have hitherto been manufactured for years with finishes of certain sizes. On jars of current production the size has been precisely figured at the minimum required for the practical purposes of the container. Without in any way impairing the practicability of the jar in the filling line or its convenience in the home, the packer is thereby able in many cases to make substantial savings on closures.

Applied color lettering on dairy containers, tumblers as well as other glass containers, continues to grow in popularity. A larger percentage of bottles than ever before are supplied with applied color lettering designs.*

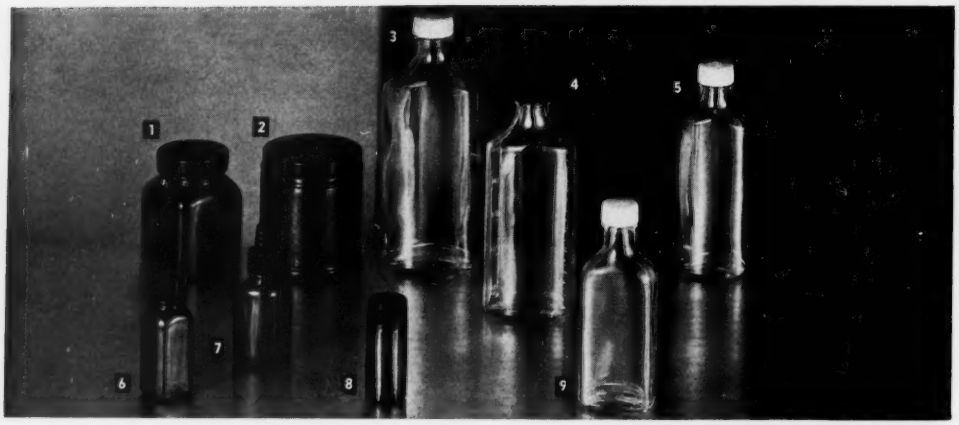
The one-gallon glass jug is increasingly popular as a container for skimmed milk and buttermilk, particularly because the wide mouth permits easy washing and sterilization, a card disk being used as closure.

The supplying of suitable glass containers for the distribution of orange juice has developed a complete new department of profitable business within the dairy industry. All types of patented glass containers are available for use in this new department, which in some cases handles fresh orange juice, and in other cases an orange drink made from the fruit concentrate.

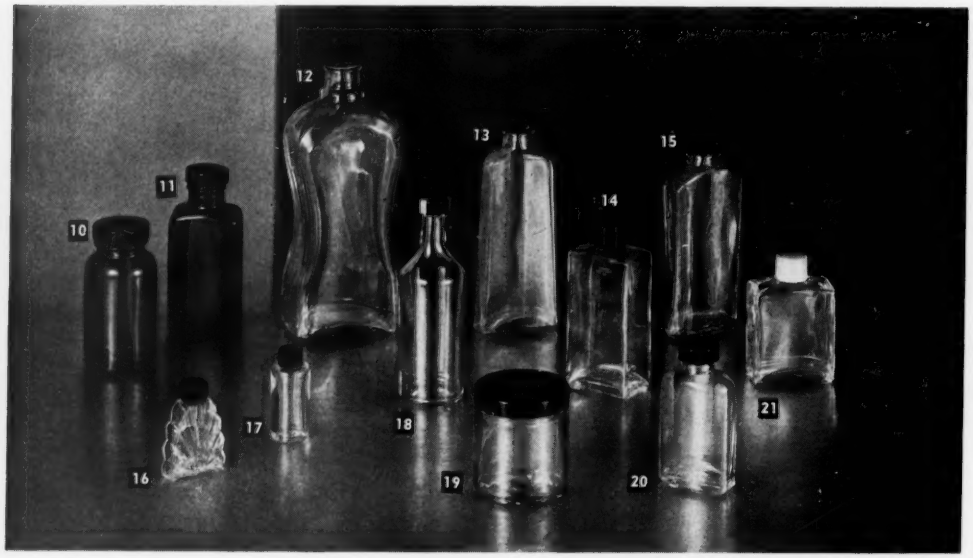
In gift packaging of all kinds glass has rapidly taken a pre-eminent position. Glass and applied color have opened up immense new possibilities of attractive gift combinations. Not only is this true in gift sets where the package containing the various items is primarily designed for re-use value, but also in combination sets where the outer box or container is designed primarily to carry a combination of products usually used together, with the purpose of influencing the sale of more

* See article, page 264.

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Prescription ware containers. **1.** Wide mouth powder jar. **2.** Ointment jar. **3, 4** and, **5.** 12-, 8- and 6-oz. prescription ovals. **6.** Iodine bottle. **7.** Dropper bottle. **8.** Capsule container. **9.** 4-oz. prescription oval.



Pharmaceutical, proprietary and cosmetic containers. **10.** Wide mouth round solid chemical container. **11.** Amber blake. **12.** Rubbing alcohol bottle. **13.** Extract bottle. **14.** Oblong toilet bottle. **15.** General purpose oblong. **16.** Perfume flaconette. **17.** Nail polish bottle. **18.** Round toilet bottle. **19.** Cream jar. **20.** Tablet container. **21.** Brilliantine bottle.



Beer containers. **1.** Half-gallon "Steinie." **2.** 12-oz. standard export. **3.** Quart "Steinie." **4.** 12-oz. "Stubbie." **5.** 12-oz. "Steinie."

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than one item at a time. The consideration of the glass package is now important to the producer of gift sets of either type.

In the proprietary field the most conspicuous improvement in glass container design was without doubt the pour-out finish. Its unique construction permits good pouring performance with a maximum of throat opening for rapid filling. In combination with attractive molded closures the pour-out finish has been the means of great improvement in package appearance.

A pour-out finish has also been successfully applied to prescription ovals. One manufacturer now offers it on all of his molded cap services. In the bottle's neck is a V-shaped channel which concentrates and directs the flow of the liquid being poured. Underneath the bottle's lip is a notch which grips the spoon preventing slipping and eliminating dripping and curling under of the liquid.

A recent development is the Bell closure for acid bottles. This closure consists of a molded cap with a glass liner and eliminates the necessity for ground glass stoppers.

Typical of many other miscellaneous new applications of glass to industry's diversified packaging problems, may be mentioned the discovery of the value of amber glass in protecting pyrethrum type insecticides from light.

The endless march of glass into fields, hitherto monopolized by other packaging materials, is exemplified by the recent adoption of a glass package for cigars. The glass container allows hermetic re-seal and thus retains the moisture in cigars for a much longer period. It displays them very effectively and has obvious merchandising advantages. A lithographed lug cap is used for utility and harmonious effect.

Types and Purpose of Glass Containers

1. Food containers
   - (a) Milk bottles: For milk and cream. (Blown lettering or applied color lettering.)
   - (b) Narrow-neck blown bottles: For catsups, chili sauces, table sauces, vinegars, salad dressings, syrups, condiments, spices, salad oils, oyster cocktails, etc.
   - (c) Wide-mouth blown bottles: For jams, preserves, mustards, candy jars, cherry bottles, olive bottles (wide or narrow mouth), pickle bottles, crushed fruit jars, horseradish bottles, mayonnaise jars, vegetable jars, meat jars, salt and pepper shakers (when sold to packers), etc.
   - (d) Pressed ware, tumblers: Used largely for jelly, peanut butter, marmalade, cottage cheese, grape fruit juice; some meat products.
2. Beverage containers
   - (a) For carbonated beverages such as sodas, ginger ales, malt extracts.
   - (b) For cereal and malt beverages. (Standard beer bottles and new type "non-returnable" beer bottles.)
   - (c) For non-carbonated beverages, such as fruit juices and still water.
   - (d) Liquor ware. Wine bottles.
3. Bottles and jars *for medicinal and toilet preparations (both pressed and blown)*

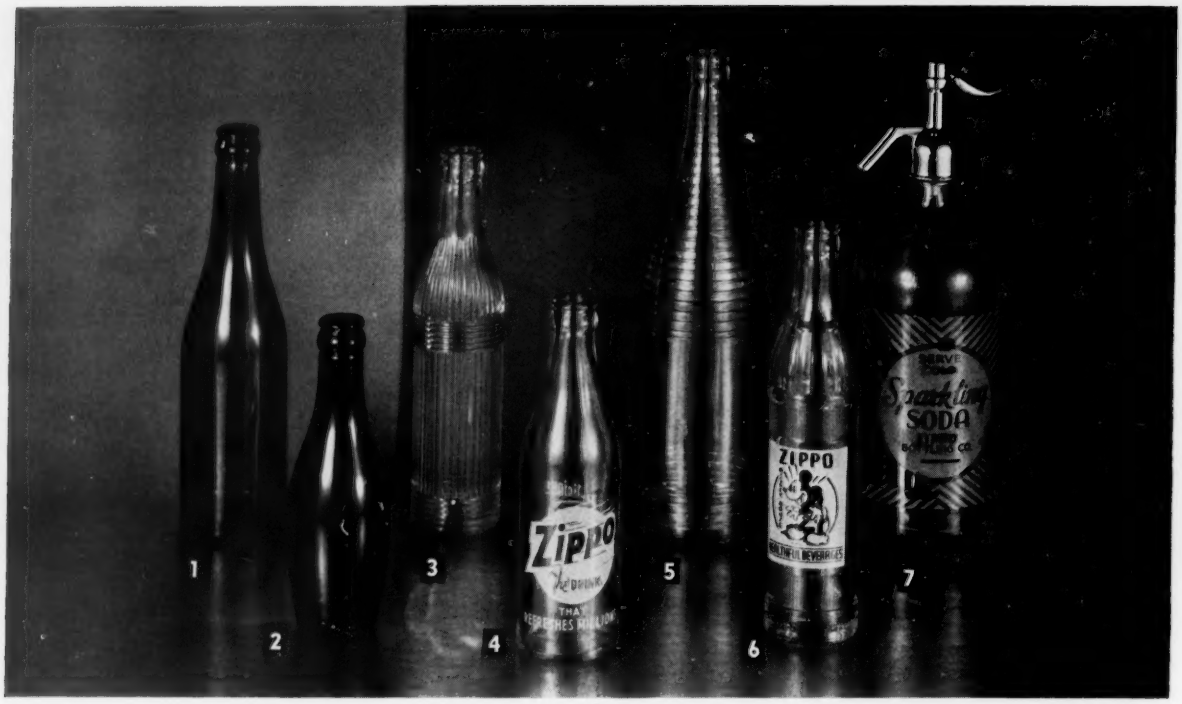
   Medicine bottles, druggists prescription ware, bottles for pharmaceutical preparations and use of manufacturing chemists, containers for toilet preparations, cosmetics, peroxides, citrates, hair tonics, pomades, liniments, cold creams, vaseline, face creams, perfume, toilet water, lotions, talcum powders, castor oil, flavoring extracts, sterilizers, and other items of similar nature.
4. General purpose containers

   For acids, cleaning fluids, polishes, paints, shellacs, varnishes, stains, ammonias, inks, mucilages,

Liquor ware containers. **1.** Quart round brandy. **2.** 16-oz. dandy oval. **3.** 16-oz. decorated oval. **4.** Miniature oval. **5.** 8-oz. concave flask.



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Carbonated beverage containers. **1.** Pint water. **2.** Club soda. **3.** Decorated soda. **4.** Applied color label soda (stock mold). **5.** Decorated quart soda. **6.** Applied color label soda (private mold). **7.** Applied color label siphon.



Wine containers. **1.** Champagne. **2.** Sweet wine. **3.** Burgundy. **4.** Grape design wine glass. **5.** Sauterne. **6.** Rock and Rye. **7.** Grape design wine gallon.

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battery jars, soap globes, tamper-proof oil-dispensing bottles, reservoirs for oil stoves, fire-extinguishers and other special items.

Advantages

The glass container possesses many marketing advantages from the standpoint of the packer and bottler. A few of these advantages are listed below. Their sequence of importance depends upon the product.

1. The glass container is a most sanitary container. Foreign substance of any kind can be readily detected through such container.
2. The glass container places delicate foods and drinks in the consumer's hands free from all foreign tastes and flavors.
3. The development of automatic machinery makes it easy to pack a product in glass.
4. Transparent containers guarantee 100 per cent inspection, thus establishing public confidence.
5. In revealing everything as it is, the glass container gives the packer full credit for his use of high-class raw materials and superior packing methods.
6. The packer is protected in that if there are any imperfections in the product or mistakes in labeling, they can be detected while in his hands.
7. Since color is a potent factor, the transparent glass container packed with a colorful product offers unusual opportunities for the use of attractive labels.
8. The housewife is already sold on the idea of glass for home preserving. Thus, she is a ready prospect for goods marketed in glass.
9. The glass container lends itself to individuality in size and shape; hence, adaptable to many products.
10. Modern glass containers possess great tensile strength, withstand the heavy shocks incident to shipping and handling, and can be subjected to very high temperatures in processing (cooking).
11. Various products can now be vacuum packed in glass to definite advantage.
12. Many glass containers are valued in the home for re-use as pantry jars and for home preserving.
13. The applied color process can be used to fuse the name of the product, the trade mark, and other designs into the glass, eliminating labeling if desired.

The Glass Container Association of America, 19 West 44th St., New York, is at the service of packers and bottlers requesting information upon glass containers, closures, equipment and special bottling problems.

GLASS VIALS

by E. J. RHEIN*

Glass vials have found wide application for packaging liquids, powders and tablets that do not require large, cumbersome or bulky containers, either for sampling or permanent packaging.

Transparency, ability to preserve its shape unchanged under all the conditions of temperature and mechanical shock ordinarily encountered in commerce, resistance to scratching and the imperviousness of the surface to weathering and chemical reagents are inherent properties of glass, which make it an ideal material for packaging purposes. In the form of a vial made from tubing, these properties are exhibited to the best advantage. The evenness of the wall throughout, due to the use of automatic machine-made tubing and subsequent fabrication by precision machines, eliminates distortion of vision and permits the use of lighter walls without sacrifice of strength.

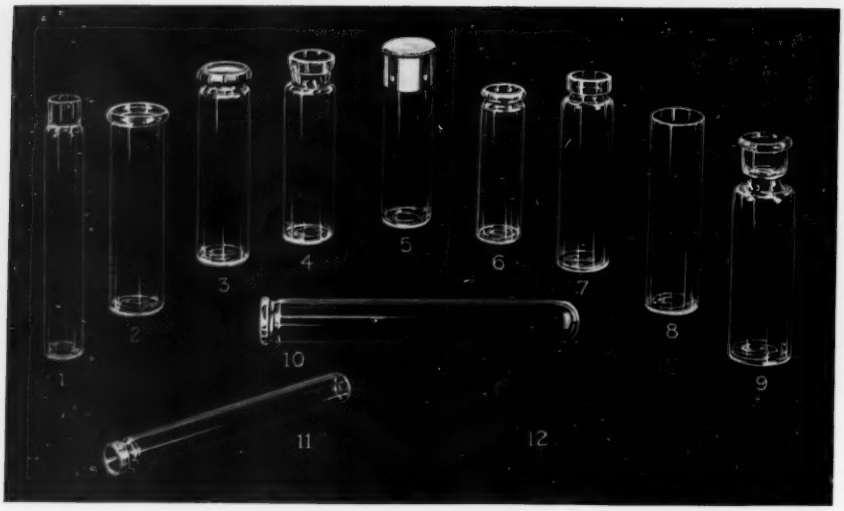
Standard vials, made in a wide range of diameters and heights, are available from stock in 1/4-, 1/2-, 1-, 1 1/2-, 2-, 3-, 4-, 6- and 8-dram sizes. These vials all have a cylindrical body and flat bottom. Neck finishes available are: plain glazed; so-called "patent lip" (that is, a constricted neck with reinforced top); screw threaded; ring finish on full width neck; "Re-seal-it;" glazed top with diameters held closely for a slip-on cap.

The packaging engineer, however, is not restricted, in his choice of the proper container, to the above standard sizes and shapes. Vials can be fabricated which have flat or oval bodies and bottoms can be rounded as well as flat. An almost infinite variety of neck finishes can be formed on the vials. It is also possible to obtain a vial open at both ends and these ends can be finished in any way desired, or vials can be had which may be sealed shut after filling.

Of equal importance to the possibility of obtaining special vials, is the fact that there is a minimum of expense involved for tools and jigs, due to the adaptability of glass tubing and the machines which fabricate the vials. This permits earlier deliveries, which is further helped by the abundant stocks of tubing of different diameters always available.

For liquids, the most widely used containers are the "patent lip" and screw threaded types. Being liquid-tight, when the proper closure is selected, they serve admirably for perfumes, essential oils, flavoring extracts, antiseptics, serums, eye-glass cleaners, glue for model airplanes, etc. Applicator assemblies with glass rods attached to the caps provide safe and convenient appli-

* Sales Manager, Kimble Glass Co.



Types and comparative sizes of glass vials. **1.** Case neck. **2.** Ring neck. **3.** Re-Seal-It. **4.** Tapered patent lip. **5.** Slip cap. **6.** Novelty neck. **7.** Patent lip. **8.** Shell. **9.** Cuff neck. **10.** Round bottom. **11.** Perfume. **12.** Amber hypo. tablet. Photo courtesy of the Kimble Glass Co.

cators for dispensing iodine, mercurochrome, merthiolate, corn cure remedies, etc. The use of a rubber nipple and glass dropper together with the proper closure, gives an excellent combination container and dispenser for ear, eye and nose drops, etc. A special screw threaded vial, with an extended nose having a small outlet, has been adopted by several drug concerns as a container for iodine which allows dispensing without the use of rod, dropper, cotton or other means of application.

In the packaging of dry products, the greater diversification is found. For tablets, where it is essential that these lay flat, fit tightly inside the container to prevent abrasion due to horizontal movement and also that they can be easily removed, a vial without a constricted neck is necessary. Here the plain glazed, ring, inside screw thread and "Re-seal-it" necks are used. The many forms of vials have also been used successfully for capsules, pills, powders, effervescent salts, dental floss, styptic pencils, photographic developers, manicure aids, etc. An interesting use of a special vial is as a container for tooth brushes, which can be packed in a sterile condition and delivered to the user in the same state.

Since vials can be adapted to practically any type of closure, there is no restriction on the designer's ingenuity in "dressing up" the package. As for labeling, either metallic or paper labels can be used or, if desired, the glass itself can be decorated by printing suitable inscriptions and designs directly onto the surface. The printing ink can be an air-drying enamel, where permanency is not necessary, or it can be a colored ground glass in suspension which can be fused into the vial surface.

The smallness and light weight of vials make them particularly adaptable for use on display cards. This same lightness makes the vial an ideal container for merchandise which will be carried around by the user in pocket or pocketbook, while, at the same time, the shape prevents bulging.

Vials have also been used successfully as inner containers in complicated assemblies. For instance, a famous maker of glues and pastes uses a glass vial as a water-well and brush holder in the center of each jar of library paste.

In the field of sampling, the proper size vial to adequately sample most products is available and the attractive manner in which the vial displays the sample has found favor with many manufacturers. Here, again, size and weight are decided factors, for savings in shipping and mailing costs are possible.

SEALING COMPOUNDS

by ROBERT J. GRAY*

Sealing compounds are used to provide those few millimeters of resilient gasket which make possible the modern tightly sealed glass or metal vacuum container. The vacuum pack is no longer reserved for a few extra-sensitive products. Today its special protective and sales features are being taken advantage of by manufacturers of everything from fruit juices and baking powder to typewriter ribbons. There can obviously be no room for guesswork in sealing such packages.

Every gasket today represents extensive experimentation in developing the compound in the laboratory; months of field testing to make sure that it is absolutely right for the product, the closure and the packaging method—to say nothing of the years of technical training and practical experience that form its background.

* Advertising Manager, Dewey and Almy Chemical Co.

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Today practically all sealing compounds are made from specially compounded latices, that is, water emulsions of rubber which are non-inflammable and non-toxic, and which eliminate the fire, explosion and poison hazards of former compounds. These colloidal dispersions are meticulously manufactured under strict chemical control to insure constant characteristics of fluidity, viscosity, plasticity and solid content, so as to permit high-speed application on modern lining machines.

Vacuum packing has brought with it an increased reliance on the safety and dependability of the gasket for all kinds of packs. Modern gaskets are quite frequently of the "flowed-in" type, in contrast to the earlier preformed variety. The compound is flowed, in liquid form, directly into the closure groove and dried in place to form an integral part of the cap or cover, with one smooth sealing surface. It was first adopted by the tin can manufacturers for lining their ends, because it enabled them to obtain a tighter, safer seal, as well as higher production and permitted the safe packaging of many new products.

More recent developments of this type of gasket have permitted its use for glass, paper and steel containers—not the same gasket, to be sure, but one built to give the special properties demanded for the sealing of the particular container.

The sealing compound used for glass, for instance, must give a heavier gasket than that used on a tin can. It must be resilient and cushionlike, to take care of inevitable irregularities in the surface of the glass. It must seal tightly, yet permit easy removal, for customers will no longer tolerate containers that are hard to open. It must admit of flexibility in application, so that the gasket can be applied where it is needed—flat in the groove for sealing an ordinary screw cap, moved farther into the rim for sealing a tumbler cap, etc.

Among these heavier gaskets for glass, there are two major types. First, there are those made from vulcanized rubber, like the rubber rings your mother used to use in home canning. These require extreme care in cutting to keep them uniformly level and must be more or less mechanically held in place in the cap before use. Today the "flowed-in" type of gasket is coming more and more into use. The cap manufacturer applies the gasket in liquid form directly to the cap groove, where it is dried in place to give a single, uniform sealing surface. Modern equipment is now available which makes it possible to apply the compound to the caps efficiently and economically at volume production speeds. A typical machine is illustrated in Fig. 1. A carefully controlled liquid virgin latex, compounded with suitable inert filler materials, is forced in accurately measured quantities into the cap as it is rotated under the nozzle and the closure is then passed through drying ovens which evaporate the liquids and leave the firm resilient gasket as an integral part of the cap. The method in which the compound is applied can best be illustrated by a few simple diagrams.

Fig. 3 shows how the liquid latices, carefully compounded for proper lineability, viscosity and solids content, are flowed from the nozzle of the machine directly into the cap groove. By changing the angle of the nozzle, it is possible to place the film exactly where it is desired in the cap. Since it is one of the laws of a liquid that it "seeks its own level," the packer is assured of a perfectly smooth, even gasket. Fig. 4 shows how the gasket is then placed in a typical screw cap. Fig. 5 shows how it is placed in a tumbler cap to seal securely against the thin smooth rim of the tumbler.

For five-gallon pails and steel drums, the gasket is "flowed" into the cover groove in exactly the same way, but here still another gasket material is necessary. For

Fig. 1

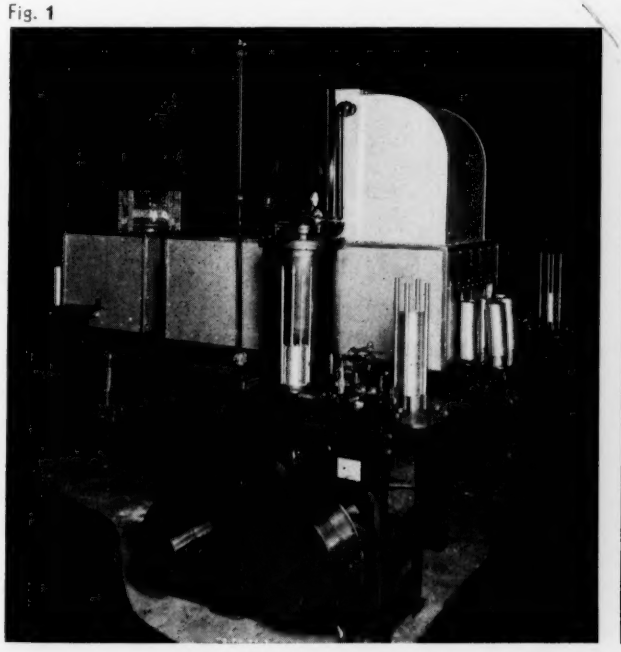
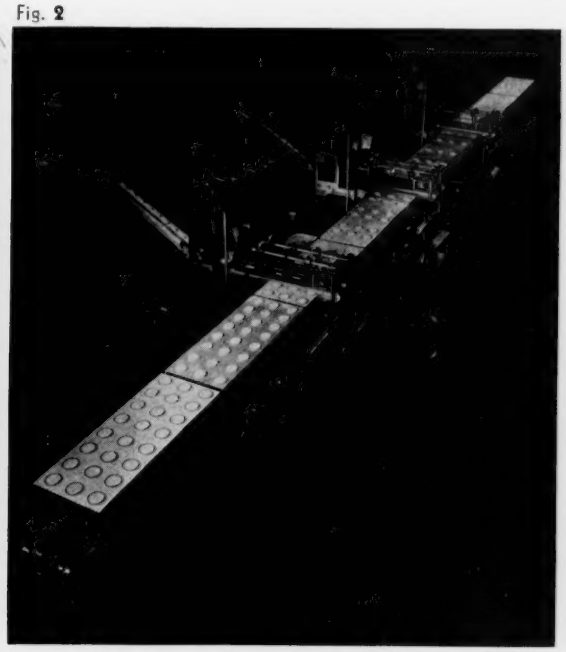


Fig. 2



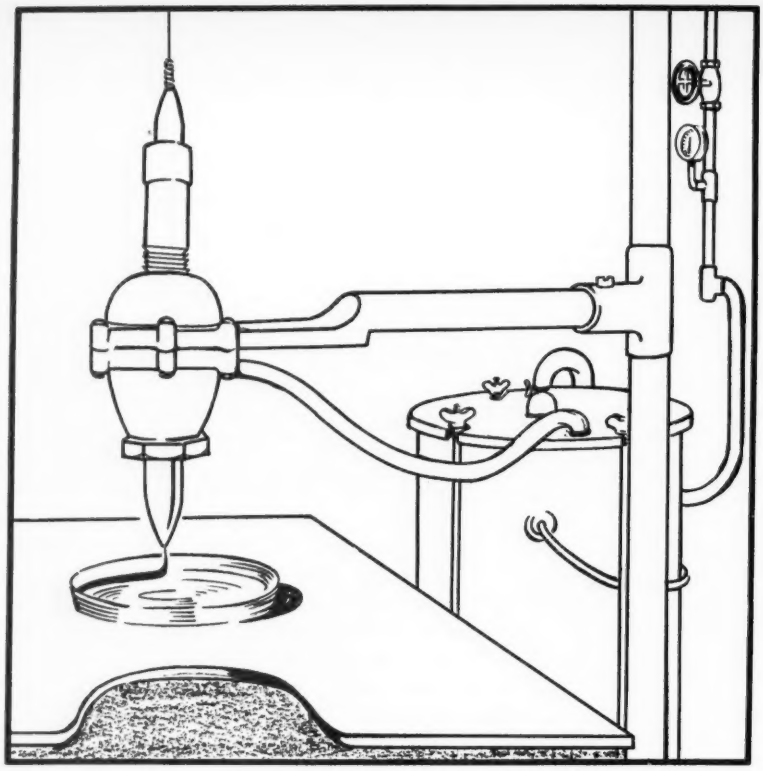


Fig. 3

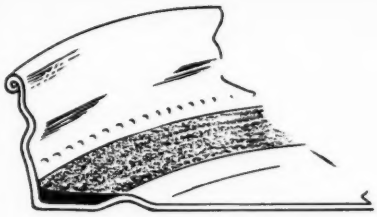


Fig. 4

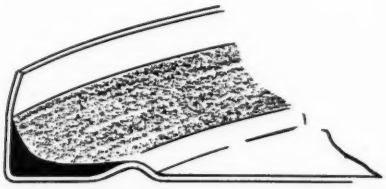


Fig. 5

this use, the latices to be flowed into the cover are specially compounded to supply the greater bulk required by the volume of the cover groove and also to give a soft, resilient and sponge-like gasket that will deform to make a tight, safe seal when the cover is crimped onto the pail. (Figs. 6 and 7.)

Just recently a new coin-opening container for vacuum packing in tin has been introduced which makes use of the glass closure type of "flowed-in" gasket in a slip cover. It has already been adopted for modern vacuum packing of such diverse products as typewriter ribbons, lozenges, cough drops and tobacco, as well as dry foodstuffs. And, because it offers a logical, economical and efficient vacuum package for such a wide variety of products, it is marked by sales-alert packers as a highly important forward step in the packaging field.

Another field in which the possibilities of the "flowed-in" gasket are just beginning to be recognized, is in the protection of products from the evaporation of essential and costly solvents. With cosmetics, especially, where creams and lotions lose their utility as well as their consumer appeal when volatile ingredients dry out of them, tight packaging under a modern "flowed-in" gasket offers wide-awake manufacturers a real opportunity to get the jump on competition by adopting the newest and best in sealing techniques. In the top class of this field, too, prices are high and consumers resent loss of even a small portion of the jarful they have paid for. Cosmetic manufacturers who spend huge sums for "different," eye-catching containers to woo their public are just as anxious to make sure their alluring packages also give the best of modern protection to the precious products packed inside. So it is only reasonable to expect that the next twelve months will see an enormous increase in the use of the modern "flowed-in" latex gasket in the cosmetic field.

Fig. 6

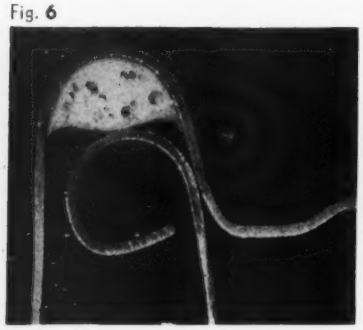
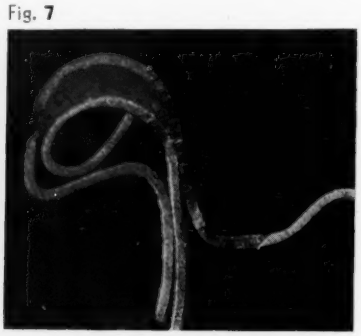


Fig. 7



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CLOSURES

Closure performance determines, to a large degree, the success of a glass container. It is the consumer's means of access to the product, and the manufacturer's assurance that the quality he packaged at his factory is still intact. Hence, in determining the selection of closures for his packages, the product manufacturer will be guided by replies to the following questions: Is the closure easy to remove? What is the condition of the product—does the closure keep it in factory-fresh condition? Is the closure easily replaced—does it provide a convenient and efficacious re-seal for the package, if such is needed? Does the seal protect the product against tampering?

The most reliable method of selecting a closure is to choose one, within the proper price range, that can be depended upon to provide the utmost in package attractiveness, secureness of seal, and convenience of use for each specific product. The ingredients of the product and the market in which it sells will, to some extent, determine the type of closure to be used. Therefore, it behooves every manufacturer who is engaged in the packaging of a product that requires sealing in a bottle, jar or can to carefully study, test, and compare the seals and methods before adopting any, remembering that the sealing material—cork, metal, lacquer, liners or sealings gaskets, glassware—as well as the product to be sealed must be given full consideration.

Glass, with its sanitary qualities, transparency, and pleasing effects, early took its natural leadership in a great many lines, but probably even today only about 30 per cent of those products which could be glass-packed are shipped in glass. This is due to the fact that usually the use of the glass container makes the package a quality item slightly more expensive than most of the other types of containers now available.

Because of its efficient sealing qualities, as well as modern manufacturing innovations in shaping cork into many practical forms, cork remains one of the popular and dependable present-day closure materials. Chief among the sealing properties of cork are its resilience, compressibility, resistance to the penetration of liquids, and its chemical inertness. With the exception of alkalis and strong solutions of certain acids, corks will provide efficient seals for almost any type of product.

Components of Closures

The elements included in a closure (other than that provided by a cork) are the following:

1. The cap itself, which consists of a shape or form made of tin-plate, plastic compound, aluminum, brass, paper, gelatin, celulose, tin or aluminum foil.

2. The liner or gasket, which provides the sealing medium, may be either a rubber compound gasket for hermetic sealing or a combination disc insert liner for products not requiring an hermetic seal. The combination disc insert liner usually consists of two parts—the outer facing, chemically inert to the action of the product, and a backing material.

3. The thread or lug construction of the cap by means of which it engages threads or lugs on the glass container.

4. The decoration, by which the packer or manufacturer is enabled to:

(a) Dress up and give his packages individuality, distinctiveness, eye-appeal, and added color.
(b) Advertise and emphasize his trade-name or mark, his organization, a group of products, the general quality of his products, a trade character or a slogan.
(c) To properly instruct the user on the storage of the product, its preparation, use, service, and directions for opening, etc.
(d) Encourage the wider use of the product through recipes and new uses.
(e) Cross-advertise and encourage the use of other products which he produces.
(f) Permanently identify powerful or poisonous drugs in case the paper label should become soiled, torn, or lost.
(g) Identify certain ingredients to be mixed with others.
(h) Offset the need and expense of labels, or to otherwise replace them where the size or shape of the containers, or the method of storing or handling them, prohibits the use of labels.

General Classification of Closures

Closures may be divided into the following general classifications: Single-seal closures, re-seal closures, special closures, and secondary closures.

Single-seal closures for glass containers are those primarily intended to protect and enclose the product in its container until it reaches the consumer—in effect, a "single seal" is accomplished. Once opened, however, the value of the closure is not destroyed for the cap can be used, in most instances, as a protection against dirt, dust or other contamination.

Used only on tin containers are several types of single and re-seal closures, such as screw-caps, friction-tops, locked-slip and draw-slip covers, as well as those seals which are reamed or clamped on.

Re-seal closures are usually of the C. T. (continuous thread), interrupted thread, lug, friction, or pressure types. As indicated by their designation, they are used where a secure re-seal is desired, although after they are

once opened there is no protection of the product from atmospheric effects.

Secondary closures are those which are used to supplement other closures, either to obtain additional protection for the product or for decorative purposes. These may be variously classified as cellulose and gelatin caps, film seals, and foil hoods. Cellulose and gelatin caps are supplied by the makers in dry form or immersed in a solution which enables them to be stretched by hand over the primary closure. In drying, these shrink and thus provide a decorative cover over the seal and also help to make the seal more air-tight. Obtainable in colors and in special designs with lettering or trademarks, these closures are of further help in creating individuality for the package. Film seals are placed directly over the openings of bottles or cans and, in the conjunction with the main closure, also aid in effecting a seal. Foil hoods or caps, most frequently used on wine-bottles, are placed over the tops and extend part way down the necks of the bottles, usually being squeezed on to assure adhesion.

Under *special closures* may be listed a great number of designs, patented and otherwise, which serve particular purposes in convenience and protectability. During the last few years many special closures have been developed for use in the liquor field, such as tamper-proof, pouring, and measuring caps. Likewise, in the food and drug fields there have been many modifications of standard-type caps which permit greater convenience to the consumer of the packaged products.



Corks

1. **Champagne cork:** For use with various types of champagne of foreign or domestic vintage. Made from selected and tested corkwood in two types, for first and final bottling.

2. **Straight cork:** For use in sealing still wines (dry and sweet). Oversize, and driven under compression into bottle.

3. **Tap cork:** Inserted in bushes in heads of kegs in cooperage factories or breweries.

4. **Tapered cork:** General-use closure for bottles, jugs, flasks, etc. Manufactured in a wide range of grades, tapers, and sizes.

5. **Wedge-top cork:** Ordinary tapered cork with formed top Essentially a perfume or cosmetic container-closure.

6. **Round-top cork:** Variation in shape of No. 5, with same uses

7. **Shell cork:** Used with glass or fancy stoppers, with sprinkler-tops, and as orifice-reducers.

8. **Specie cork:** Pores of corkwood run from top to bottom instead of through the diameter. For sealing laboratory glassware, certain dry chemicals, and for mustard, horseradish, etc.

9. **Sprinkler cork:** Metal sprinkler inserted in shell cork. Used for dispensing liquids.

10, 11, 12. **Topped corks** are of three types and are widely used for sealing liquors, perfumes, essential oils, lotions, extracts, etc. No. 10 shows molded-plastic top attached to accurately cut cork; No. 11, lithographed metal-top cork; and No. 12, embossed wood-top cork.

13. **Flange cork:** Flange facilitates removal of closure from bottle. For whiskey-containers and for use with various types of tamper-proof outer seals.

14 and 15. **Dauber and applicators,** respectively: Works with wooden tops.

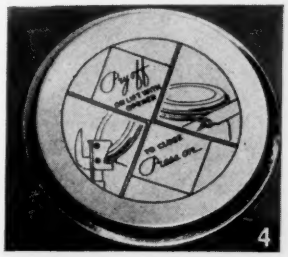
16. **Orifice-reducer:** Shell cork which may be equipped with metal fitting and used to convert standard cork-finish or screw-finish into shaker-type units for dispensing. Of particular value and use to manufacturers who do not have special vacuum filling equipment. No special equipment is necessary to apply orifice-reducers to bottles.

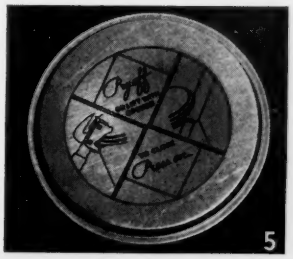
17. **Rubber cork or stopper:** Used for bottles containing ammonia, certain chemicals, etc.



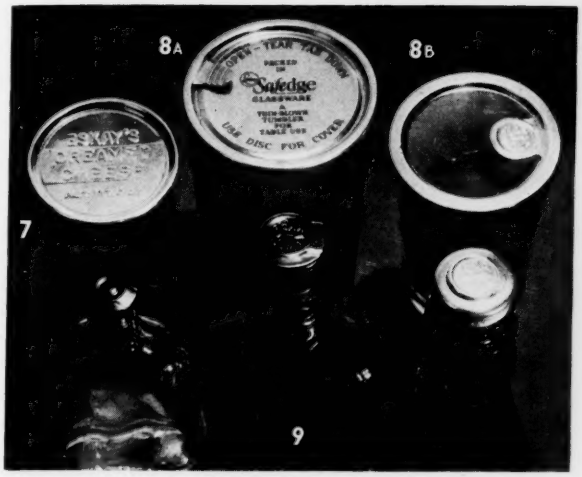


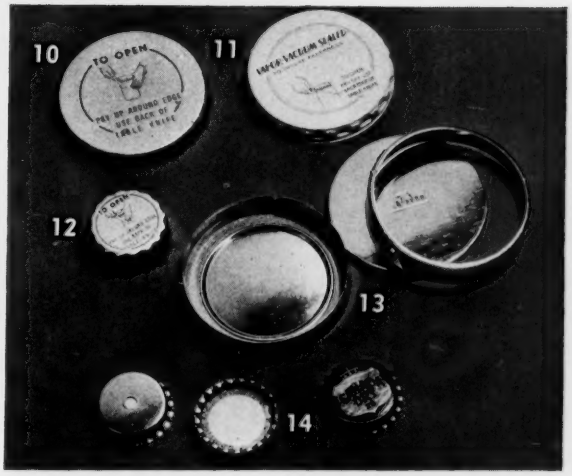












Single-seal Closures

Single-seal closures are usually constructed of a single piece of metal, principally tin-plate, although aluminum is used for some. All, with the exception of Nos. 7, 9 and 14, use rubber sealing-gaskets to effect their seal. Some of these caps make their seal on the side of the container finish, others are known as top-seal caps and make their seal on the top of the finish. Certain single-seal closures, of course, permit re-use as cover-caps although where these are vacuum-sealed the original purpose is destroyed once the cap or closure is removed.

1. **Top seal** for thin tumblers. Vacuum. Whitecap.

2. **Anchor D cap:** Side seal; air-tight or vacuum. For jars, bottles, and tumblers.

3. **Anchor T cap:** Side seal; air-tight or vacuum. For thin-blown and thin-pressed tumblers.

4. **Anchor F cap:** Side seal; pry off. Air-tight or vacuum. For jars, bottles, and tumblers.

5. **Anchor K cap:** Side seal; pry off. More easily removable than No. 4.

6. **Anchor Pilot cap:** Side seal; pry off. Vacuum.

7. **Alseco foil tumbler cap:** crimped on. Also available in sifter (perforated) type.

8A and 8B. **Vacuum caps** with tear-off tabs. Top seal; two tabs may be provided. Aluminum or tin.

9. **Goldy seals:** Tear-off; aluminum. Top seal.

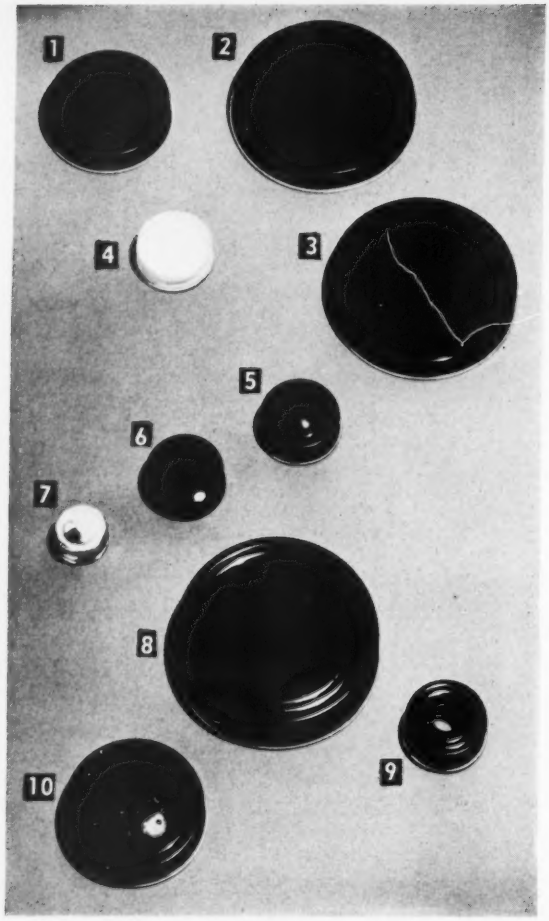
10. **Whitecap** vacuum side seal for pry-off finish.

11. **Whitecap** vacuum deep top seal for pry-off finish.

12. **Whitecap** double-shell vacuum cap.

13. **Band cap,** two-piece vacuum.

14. **Crown caps:** Designed primarily for sealing carbonated beverages and bottled and canned beer. Use liners of various types. Perforated top shown used for bluing, etc.





Re-seal Closures—Single Shell

These are of the single shell, continuous thread (C. T.), screw type. Made of tin-plate; some of aluminum. May be lithographed, embossed, or perforated.

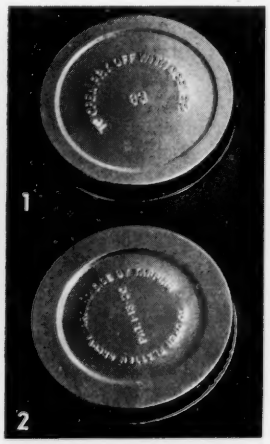
As with the single-seal closures, re-seal caps are provided with liners made of selected materials to meet given conditions. In the wide-mouth sizes, re-seal caps are used to seal such products as foods, candy, cosmetics, creams, ointments, etc. In the narrow-mouth sizes they are extensively used for food products, pharmaceuticals, wines, liquors, cordials, drugs, cosmetics, glues, cleaning fluids, shampoos, pastes, shoe polishes, mineral and vegetable oils, etc.

1. **Flat top,** rolled edge, no knurl.
2. **Flat top,** rolled edge, with knurl.
3. **Flat top,** no ring, no knurl.
4. **Full dome top,** rolled edge, no knurl.
5. **Standard dome,** no knurl.
6. **Full dome top,** no knurl.
7. **Part dome top,** raw edge, with semi-knurl.
8. **Flat top,** rolled edge, with knurl, depressed ring.
9. **Single perforation top,** rolled edge, with knurl, depressed ring.
10. **Perforated top** (partial dome), rolled edge, no knurl.
11. **Perforated top** (flat), rolled edge, with knurl.
12. **Flat top,** rolled edge, with knurl, depressed ring, gasket lined. Illustration shows under side to indicate placing of gasket.
13. **Partial dome top,** rolled edge, with knurl, decorated.
14. **Unishell** in which screw thread is formed from curled-under edge so that the peripheral side is flat. Decorated.
15. **Two-piece single shell.** The top fits over a metal disk, on which is vulcanized the sealing-gasket.
16. **Roll on.** An aluminum screw-cap, the threads of which are formed on the container.

Single-shell, re-seal caps, are also made in friction and lug types. In the latter case, the lugs are formed integral with the shell itself. Both types may be lithographed in plain colors or decorated.

1. **Anchor A Clipper:** Pry-off friction cap.
2. **Anchor R. Clipper:** Corrugated skirt, friction cap. Opened by flattening groove around side by tapping.





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3. **Anchor Halyard:** Air-tight or vacuum seal. Removed with a lift-opener (wire) integral with the container.

4. **Uniplex:** Single shell, lug cap with flat peripheral side. Under and top views.

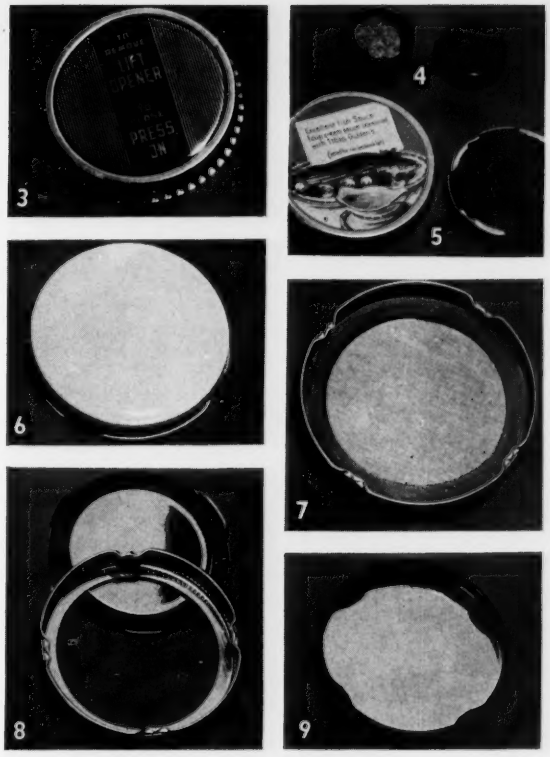
5. **Duplex:** Single shell, lug cap with flat peripheral side. Decorated. Top and under views.

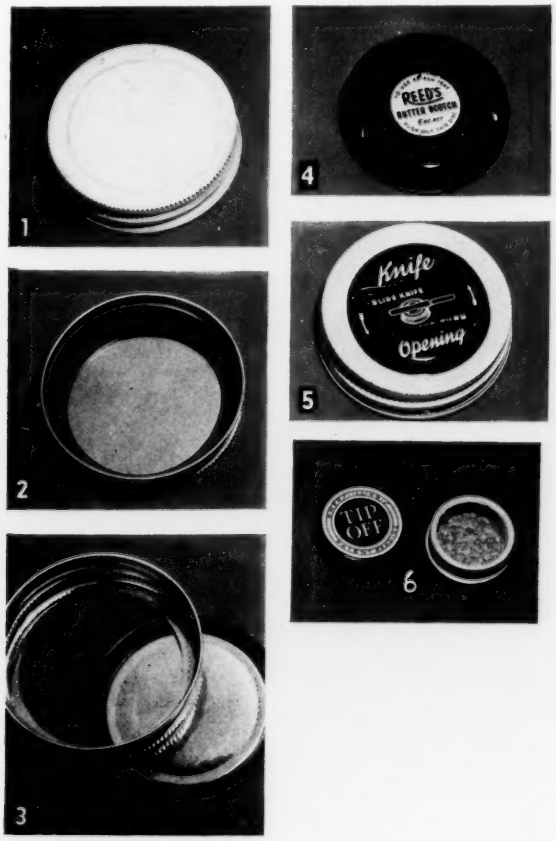
6. **Anchor Amerseal:** Lug cap with knurl. With flat, domed, or perforated top.

7. **Gasket-lined Amerseal,** air-tight or vacuum seal.

8. **Two-piece Amerseal,** air-tight or vacuum seal.

9. **Anchor Beacon:** Lug cap with flat peripheral side. This illustration shows under view revealing liner.





Re-Seal Closures—Special Types

1. **Deep-screw cap.**

2. **Gasket-lined deep-screw cap.**

3. **Two-piece deep-screw cap:** Deep-screw cap is that used on heavy containers to round out the harmony of the package. An example of this is the Mason jar. However, the use of the deep-screw cap is not confined to such jars. Deep-screw caps are single shell, of one-piece or two-piece construction, having a continuous thread, flat tops, with knurls, and are usually furnished with depressed rings. Standard or special linings or gaskets may be used, depending on the product to be contained.

4. **Ash-tray top:** A special domed, single shell, continuous-thread cap, fitted with a hinged disk that permits tipping. Three grooves are provided for the placement of cigarettes. The cap is supplied with a liner, and upon removal of this, the cap and jar serve as a convenient receptacle.

5. **Knife-opening cap:** A deep-screw single-shell cap with a special top that permits insertion of a table-knife and thus affords a method of easy opening. May be used with or without vacuum.

6. **Tip-off:** For sealing quart bottles containing distilled spirits. A special bottle finish is provided on which the tip-off closures are applied by means of a spinning-machine that produces a tailor fit by sealing the cap to both top and side of the glass finish. The top seal is obtained by a liner, while the side pressure is maintained by composition cork.

Re-Seal Closures—Double Shell

Illustrations on this page, with the exception of Nos. 12 and 13, show general and special types of double-shell caps. These are constructed with inner and outer shells tightly locked so that they have ample strength to withstand capping pressure. In double-shell screw caps the inner shell incorporates the screw-thread, while the outer shell serves as a cover to the inner shell and presents side surfaces that may be smooth or indented, as desired, but free from the thread configuration of the average single-shell cap. This feature is particularly desirable in certain packages where straight lines or uninterrupted surfaces are wanted for design purposes. Double-shell caps are available in a complete range of standard sizes. A continuous screw-thread is generally used, although there are several types of double-shell caps provided with a form of interrupted thread.

1. **Standard flat top,** large size, double-shell cap.

2. **Standard flat top,** small size, double-shell cap, showing under view with liner. No. **3** shows the upper view of the same cap.

4. **Dome top,** lithographed with trade-name of product.

5. **Dome top,** with grooved side to facilitate opening of jar.

6. **Dome top,** with indented decoration.

7. **Dome top,** with variable indentations which define a square. Generally referred to as a "square top."

8. **Double-shell cap** of burnished brass. This has an extension dome top. Upper and under views are shown.

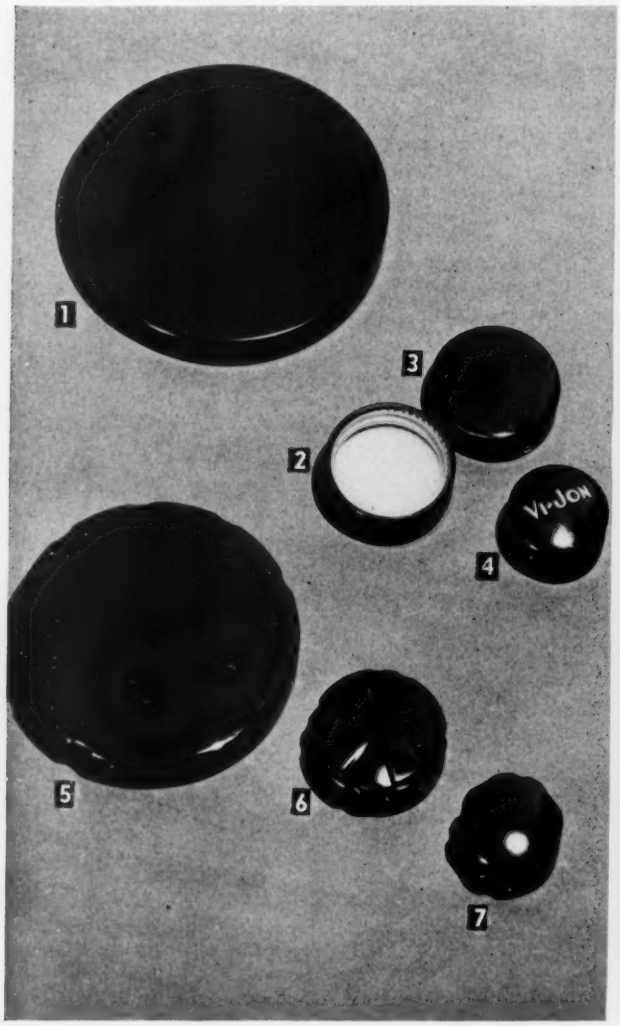
9. **Double-shell cap** of gold-wash brass, upper and under views are shown. This has a dome top and long skirt. Nos. **8** and **9** are used principally in the toiletry field.

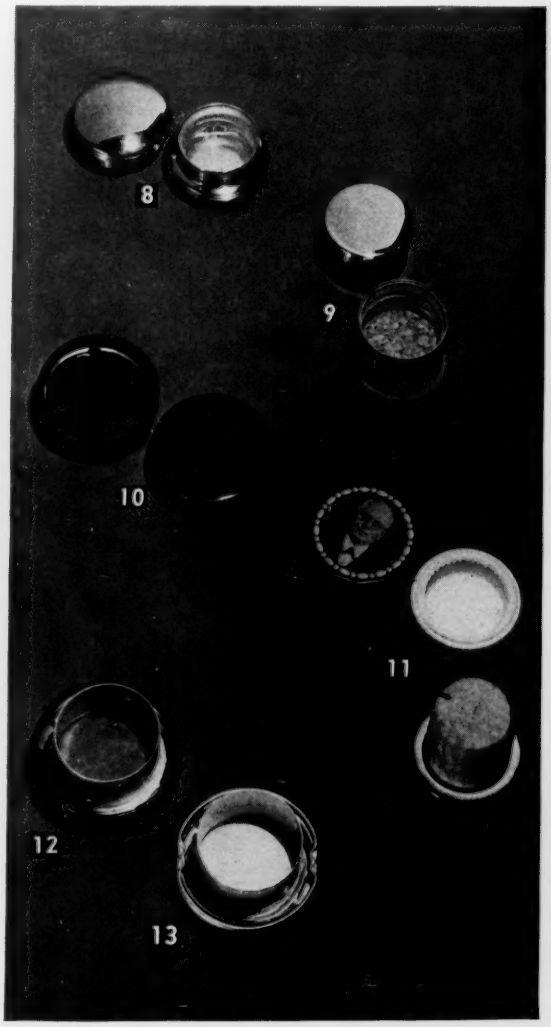
10. **Kep-Ark Autochrome cap:** Inner shell is replaced with an expansion type ring which locks liner into cap and adjusts threads to cap variations.

11. **Shurtite metal-top cork-closure:** Construction embodies the desirable features of a metal cap with the advantages of cork as a sealing medium.

12. **Amerseal Nozzle and Beacon cap:** A special nozzle or pouring neck combined with a single-shell lug-cap. Component parts are detachable.

13. **Amerseal Nozzle and Amerseal:** Same type of nozzle as in No. 12, but fitted with standard Amerseal cap.





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NEXT PAGE...CONTAINERS...

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Glass
CONTAINERS

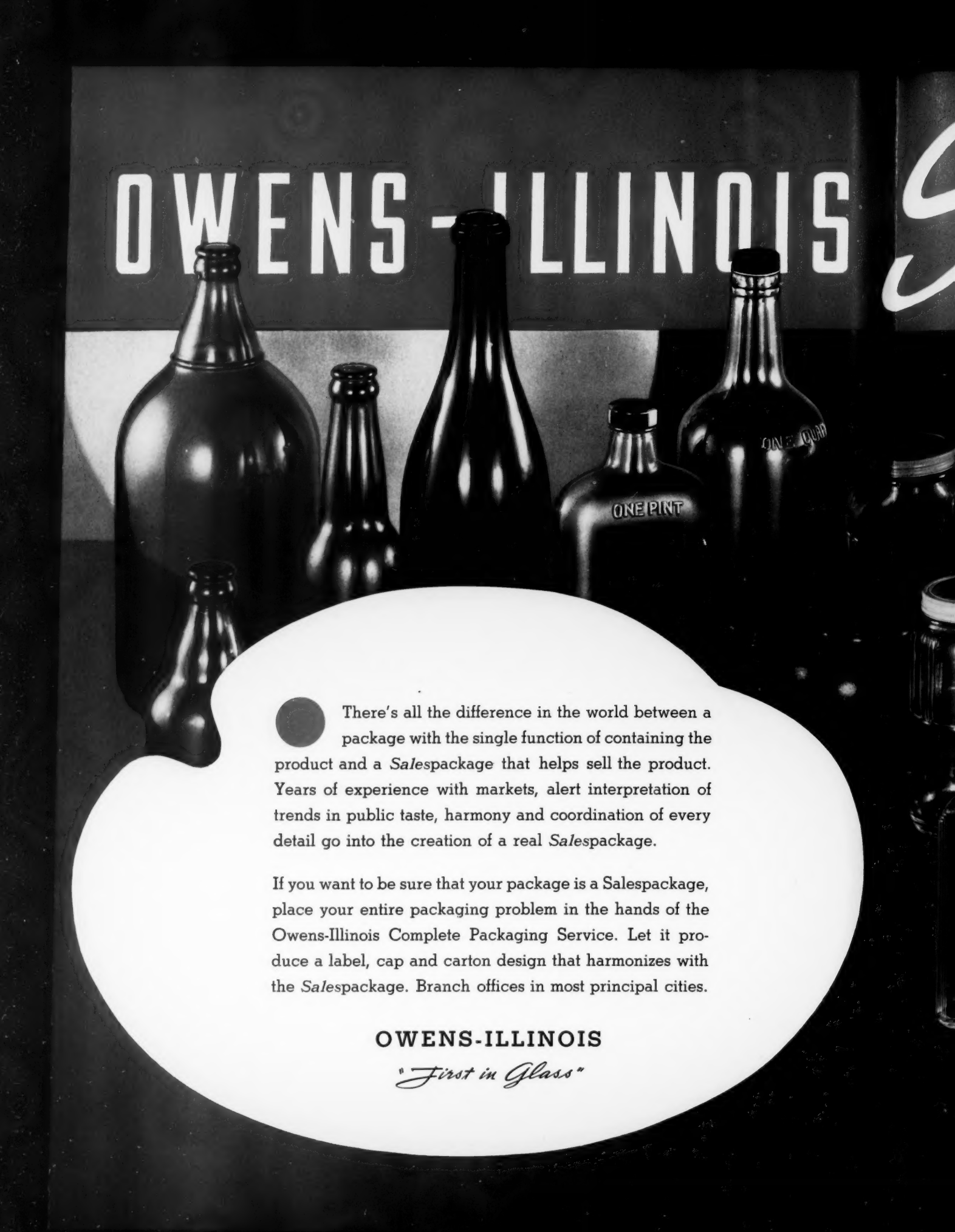


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OWENS-ILLINOIS *Sales Caps*


QUIKSEAL

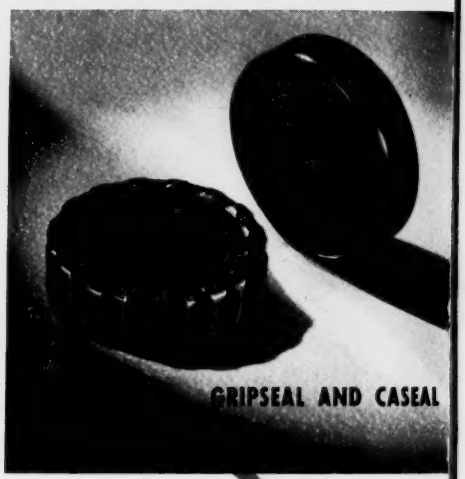

SINGLE SHELL C. T.



KNIFE-OPENING

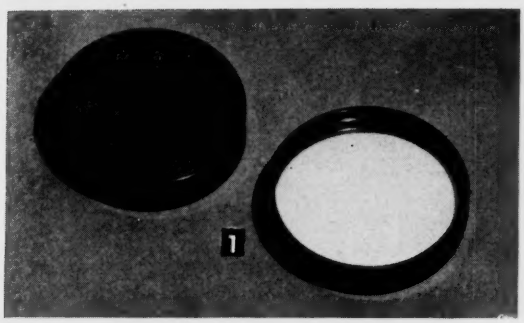

FULL DOME, NO-KNURL

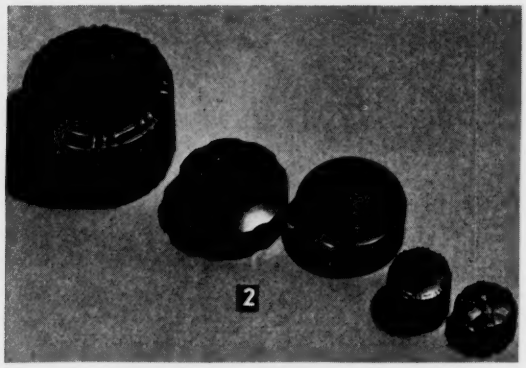

MOLDED


GRIPSEAL AND CASEAL

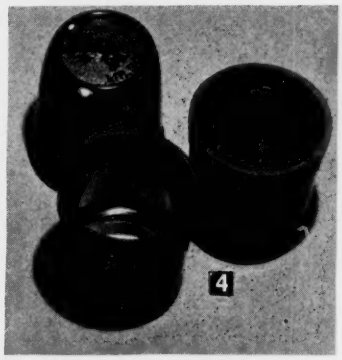
. . . ASSURE TOP SMARTNESS AND PROTECTION FOR YOUR PRODUCT

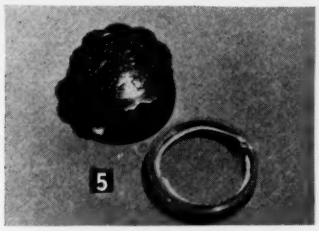
Handsome Owens-Illinois *Sales*caps help products to attract and sell on sight! *Sales*caps are scientifically designed to protect your product at each step of distribution and use. They offer utmost convenience—with features that assure easy opening and closing. They win friends for your product among consumers everywhere and build lasting goodwill. Metal and molded closures are offered in a complete range of styles and sizes . . . Owens-Illinois Glass Company, Toledo, Ohio. Branch offices in most principal cities.



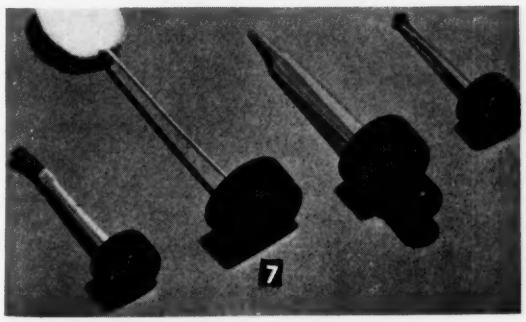


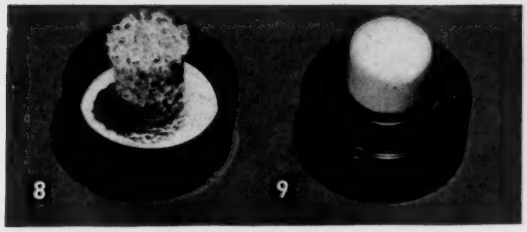














Molded Caps

Caps of molded phenol formaldehyde (Bakelite, Durez, Resinox, etc.) and, to a lesser degree, of urea formaldehyde (Plaskon, Beetle) are used extensively and have distinct advantages. They maintain a permanent lustrous finish and are manufactured in a variety of standard designs and sizes for general use with screw-finish containers for nearly every type of product packaged in glass. They are available in a wide range of standard colors or they may be specially molded with any trade mark or design, or in any shape desired. As in the case of metal caps, the liner is a most important factor in the sealing security of the molded cap. Consequently, care must be taken to assure the correct liner if the product is to be securely sealed, and the possibility of reactions between the liner and the product eliminated.

A new innovation is represented by closures molded of Polystyrene (Bakelite). This material has been chosen for acid containers because of its inertness.

In the wide-mouth sizes molded caps are used to seal such products as chemicals, cosmetics, creams, etc.

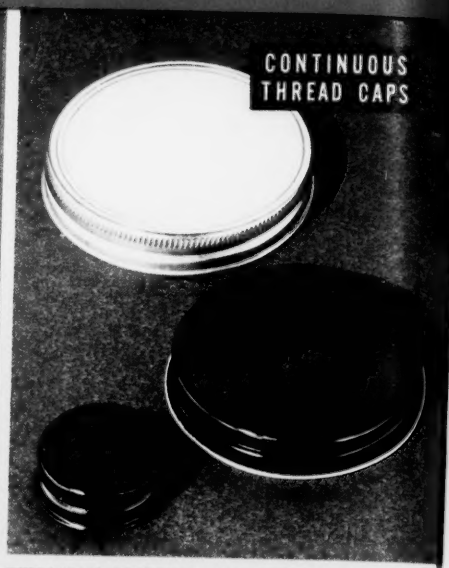
In the narrow-mouth sizes molded caps are ideal for use with such products as writing-inks, pharmaceuticals, wines, liquors, cordials, drugs, cosmetics, shampoos, polishes, and a host of other products.

1. **Flat-top molded cap** for jars.
2. **Various types** of standard-design molded bottle-caps.
3. **Anchor Trident cap:** Under view. Three interior lugs of special construction provide the means for effecting the closure. Used for bar-bottles.
4. **Molded jigger caps.** Shown are top view, with debossed trade-mark; sealing-type jigger-cap and cover type.
5. **Tamper-proof molded cap** (private design). Band breaks upon removal of cap.
6. **Molded design** with single sprinkler-opening.
7. **Molded caps** with brush, dauber, dropper, and applicator attachments.
8. **Molded cap** with sponge-applicator.
9. **Molded sprinkler-cap** with screw top.
10. **Transparent acid resistant closure** molded of Polystyrene material.

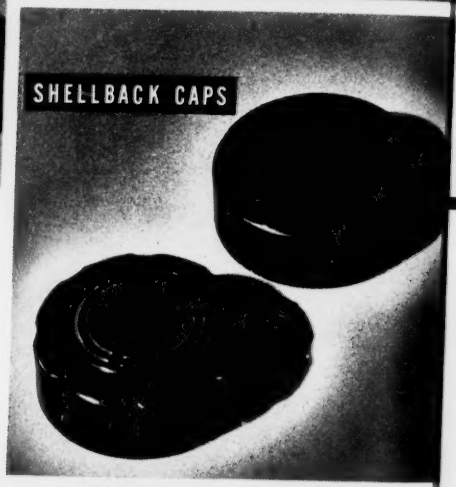
Caps & Glass

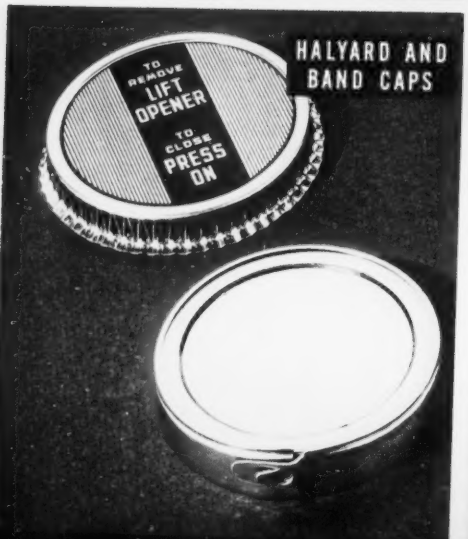




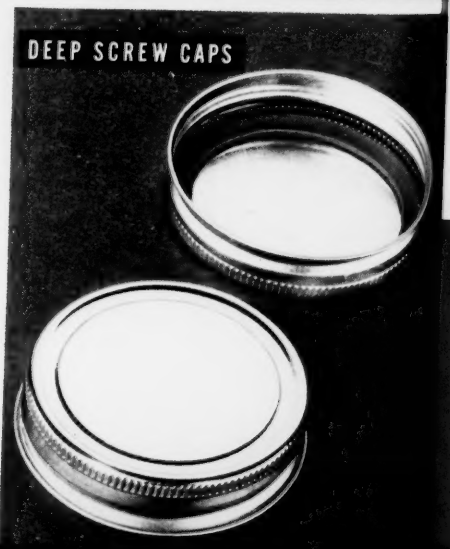










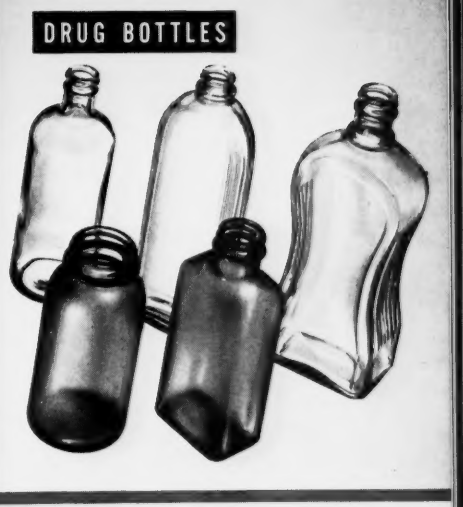


XUM



PREMIUM GLASSWARE



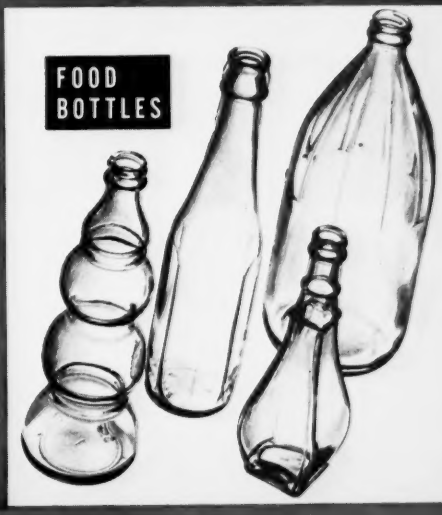












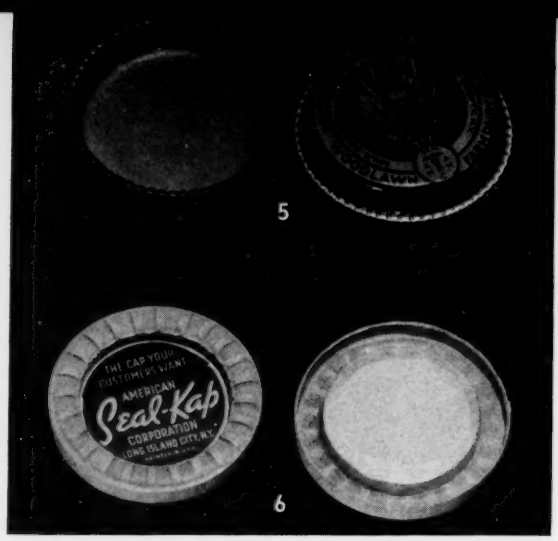
Anchor Hocking

ANCHOR HOCKING GLASS CORPORATION, Lancaster, Ohio CONTAINER DIVISION

ANCHOR CAP and CLOSURE CORPORATION, Long Island City, N. Y., and Toronto, Can. CLOSURE DIVISION

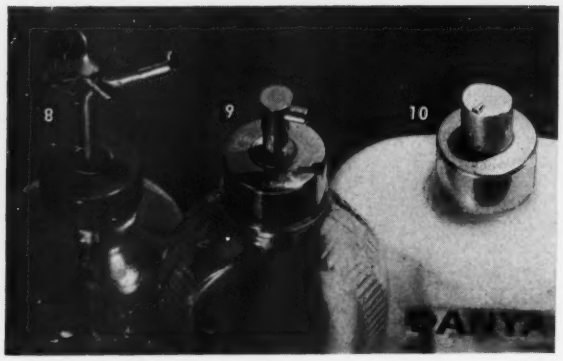
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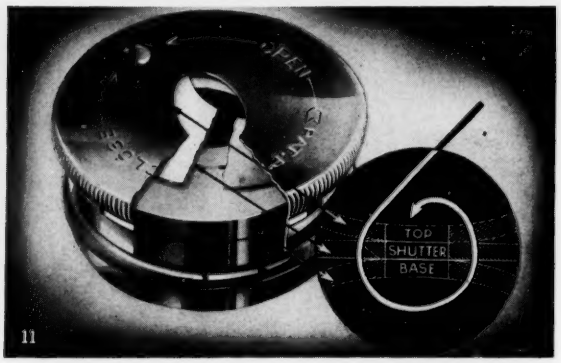












Special Closures

1. **Sentry seal:** Shown assembled and apart. Made of tin-plate. A single-shell, re-seal, C. T. screw cap surrounded by a notched tab-band. Band is broken by a pull on the tab.
2. **Gripseal cap:** A double-shell re-seal screw cap, dome shaped, with special indentations for easy removal.
3. **Alter-proof seal:** An aluminum two-piece cap for liquor bottles. The upper part is a single-shell screw cap; the lower an indented band which must be broken before the top can be removed.
4. **Pilfer-proof cap.** Made of aluminum. A single-shell screw cap with perforated extended side. As the closure is opened the band or perforated strip is broken.
5. **Saniseal cap:** A tin-plate crown cap, lined with water-proof paper for demijohns, and unlined for milk-bottles.
6. **Seal-Kap** sanitary re-seal cover for milk-bottles and jars. Made of specially treated paper, plain or in colors, and decorated.
7. **Aluminum-foil hoods** for milk-bottles.
8. **9 and 10.** Dispensing-type closures. Respectively, sprayer or atomizer, dispenser (continuous-flow type) and dropper-type dispenser. All are of the "push-down" spring type.
11. **Thorntite tops.** A type of "captive" caps. Supplied in single-opening, sifter, and concealed-sifter styles. Made of brass, aluminum, tin-plate, or steel. Finished in nickel, chrome, enamel, lacquered or plain.
12. **Seal-spout.** An aluminum pouring-spout. Made in a variety of sizes and shapes and applicable to cartons and fibre cans.
13. **No-Kap:** An adaptation of a type originally used for collapsible tubes. The closure operates by the sliding of two perfect hemispheres against each other under pressure. Units are available in combinations of metal and plastics or all metal.





Is the Customer Always Right?

Ours Say...

"Aridor Makes the Best Double Shell Caps On the Market"

SEND FOR SAMPLES IN YOUR SIZES AND SEE FOR YOURSELF



Of Course We Also Make a Complete Line of Single Shell Caps in All Varieties

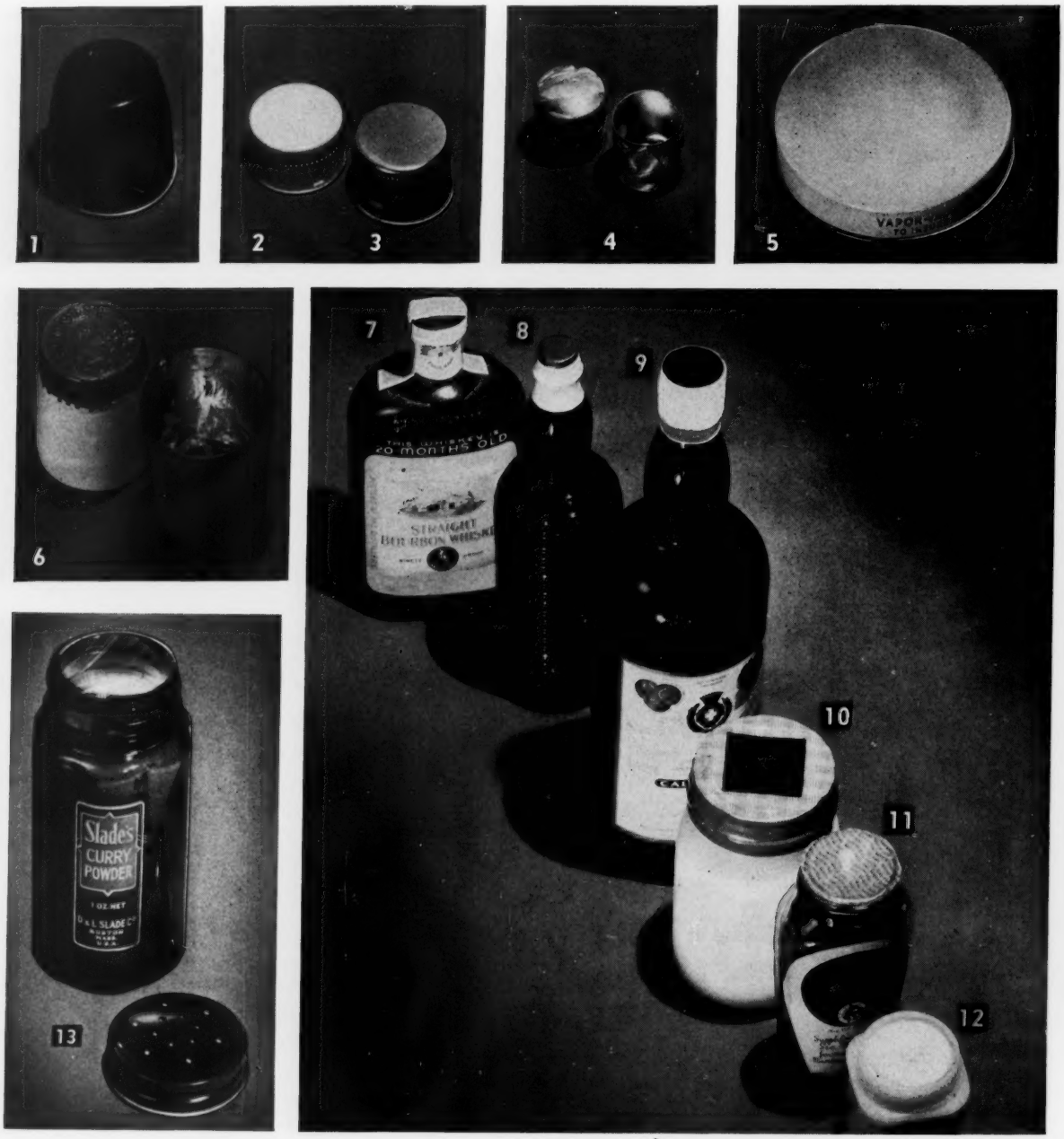
the ARIDOR Co.

3428-40 WEST 48TH PLACE CHICAGO

XUM

Secondary Closures

1. **Dose-cup:** Aluminum. Affixed to top of bottle, over regular closure, and held in place by screw-thread. May be an ordinary slip-cover.
2. **Catsup cover-cap:** Friction type with small lugs.
3. **Catsup cover-cap:** Screw type.
4. **Slip or friction cover-cap** with long skirt. Decorative. Top and under view.
5. **Slip or friction cover-cap for Mason jars:** Placed over standard deep-thread screw cap.
6. **Hoods or capsules of metal foil:** Each hood covers the entire top and stopper, as well as the upper portion of the neck of the bottle. Used originally only for wine bottles, but now applied to liquor bottles and containers for food and drug products. Made of aluminum and composition of tin and lead. Hand- or automatic-sealing machines are used in applying these.
7. **Cellulose cap or band (Wind-O-Band):** Seals not only the primary closure but the strip-stamp to the bottle. The band is transparent where it covers the strip-stamp.
8. **Viscose cap or band (Sylphseal):** Self-sealing. Made in many grades and finishes, transparent or opaque, in various colors, plain or printed. Holds closure in place so that contents of bottle will not leak or evaporate.
9. **Cellulose cap or band (Cel-O-Seal):** Fit over any type of closure and shrink tightly to the bottle-neck. Applied by hand and require no special machinery.
10. **Identical in purpose** with No. **9,** but larger, hence applicable to jars for all uses.
11. **Filma-Seal,** paper type, and No. **12,** transparent type. Also furnished in tamperproof hermetic types, and in lead and aluminum foil types of glass or metal containers. These films or seals are applied directly over the mouth or opening of the container, preventing leakage or evaporation. They are self-sealing.
13. **Filma-Seal** of transparent type used in conjunction with a perforated screw cap to preserve full strength of a spice while permitting use of convenience features embodied in perforations.





KIMBLE GLASS VIALS • •

In these days of originality, smartness and personal appeal, it is increasingly difficult even for headliners to hold their popularity. Yet, month after month, year after year, Kimble Glass Vials build up their "fan mail" to staggering figures, carrying with them to rapid success the products they contain!

Kimble crystal vials are so attractive in design and appearance . . . so light and convenient to carry . . . and so versatile in use and application . . . that the outstanding nationally-famed packagers and samplers of drugs, perfumes, proprietaries and cosmetics FEATURE their products in these lustrous small glass containers. Kimble Vials are thoroughly annealed (strain-free). They assure the consumer of safety, sanitation and pocket convenience . . . for pills, powders, capsules, liquids, salts, chemicals and oils.

Join forces with Kimble Vials and "steal the show" on every counter and shelf dispensing your merchandise! Consult us on your sampling and packaging problems . . . for new and more substantial sales.

• • • The Visible Guarantee of Invisible Quality • • •

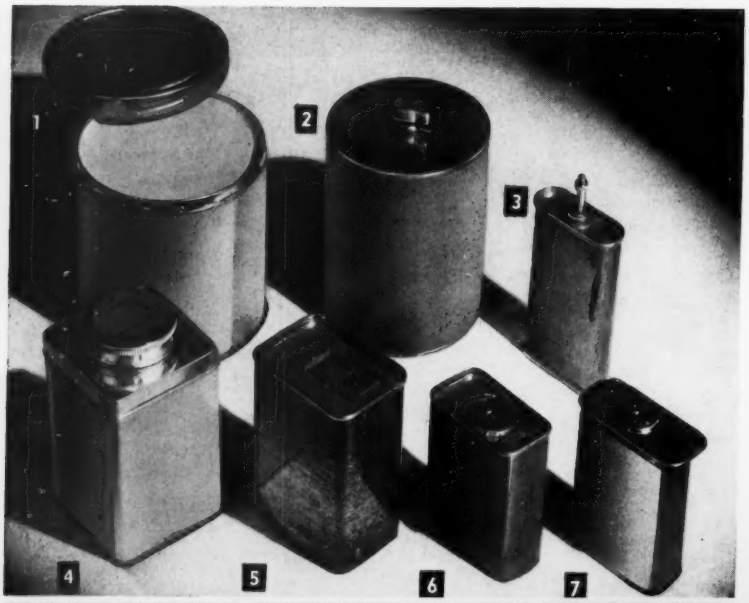
KIMBLE GLASS COMPANY • • • • VINELAND, N. J.

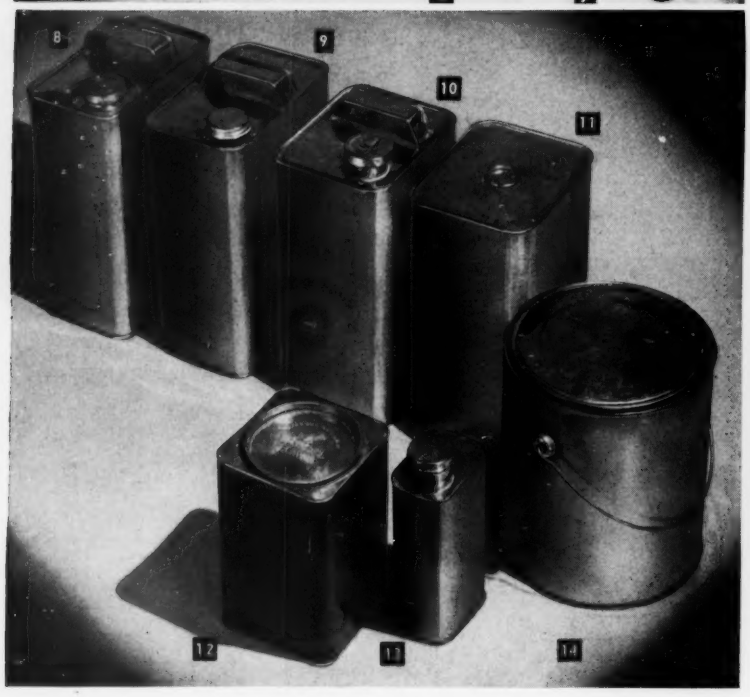
NEW YORK • • CHICAGO • • PHILADELPHIA • • DETROIT • • BOSTON

Closures for Metal Containers

In this group are shown caps and closures generally applied to metal containers. In addition, there are various types of pouring-spouts which may be completely covered by the closure—such as that included with the Barrol cap (No. **9**)—or extend beyond it. All of the closures shown, with the exception of No. **11**, can be supplied direct by can manufacturers.

1. **Round lock-top closure** with inner paper seal. Used extensively for coffee cans.
2. **Wing-nut closure,** for sealing cans containing ether, etc.
3. **Pouring-spout,** with screw tip, for small oil-cans.
4. **Round sifter-cap,** for cans containing talcum and other dry, free-flowing products.
5. **Sifter slide-dredge,** for spice cans.
6. **Revolving sifter-dredge,** for spice cans.
7. **Slide cover,** applicable to rectangular top cans, with or without rounded edges.
8. **Lug seal:** Opens and closes with part-turn.
9. **Barrol spout and cap,** screw closure.
10. **U Press-It** (inside pressure seal) with tear-off band.
11. **Newman closure,** spun on.
12. **Friction top,** with or without inner seal.
13. **Kork-N-Seal:** Available also for use with wide- and narrow-mouth glass bottles.
14. **Lock-Tite** slip cover.
15. **Pour-N-Seal** cap and nozzle closure for oval pouring spouts.
16. **Alseco R-Overseal:** A tamper-proof tear-strip type for metal cans, used as a secondary seal.

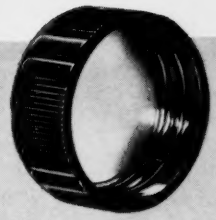












Molded Screw Caps



Molded Flange Corks



Embossed Wood Top Corks



Corks of All Types



X-ray Shows Durable Construction



CORKING TOPPERS

Send your closure problems to Mundet . . . we shall try to solve them most economically and effectively. This page shows only a few of the many closure types made by Mundet . . . each style has been designed by closure technicians to answer specific sealing problems. By controlling our sources of supply we can guarantee cork of highest quality . . . essential to good sealing. Thru our laboratory service and experience we may be able to save you money.

Give us an opportunity to show how we can help you.

MUNDET CORK CORPORATION
Closure Division, 65 S. Eleventh St.
Brooklyn, N. Y.

MUNDET CLOSURES

ATLANTA
339-41 Elizabeth St., N. E.

CHICAGO
2959 N. Paulina St.

CINCINNATI
427 W. 4th St.

CLEVELAND
Britten Terminal, Inc.

DENVER
The Stone-Hall Co.

DETROIT
335 W. Jefferson Ave.

HOUSTON
Commerce & Palmer Sts.

KANSAS CITY, MO.
1428 St. Louis Ave.

LOS ANGELES
2051 E. 37th St.

LOUISVILLE
Kentucky Bottlers Supply Co.

MEMPHIS
Memphis Bonded Warehouse

NEW ORLEANS
432 No. Peters St.

PHILADELPHIA
2226 Arch St.

ST. LOUIS
506 S. Main St.

SAN FRANCISCO
440 Brannan St.
also J. C. Millett Co.

SEATTLE
Succop-Tighe & Sons

In Canada: Mundet Cork & Insulation, Ltd., 35 Booth Ave., Toronto





CCS CROWNS
for bottled beverages

CCS originated this familiar closure, which has become the standard beverage seal throughout the world. It is significant that CCS Crowns are used on the great majority of America's most famous beverages.



THE *Dacro* CAP

Another exclusive Crown Closure that provides the last word in safety and convenience for the sealing of milk.

CROWN CLOSURES
for Every Type of Glass Packed Product

THROUGHOUT AMERICA, Crown Closures are known for unsurpassed sealing efficiency and dependability. Back of this reputation is nearly fifty years of specialized experience in sealing. And from this experience many important improvements have originated. Unmatched manufacturing facilities and the industry's finest precision machinery are additional reasons why CCS produces the finest closures that can be made. ◆ Consult with CCS first, when closures are being considered. You will find it the shortest way to satisfactory sealing for your product.

CROWN CORK AND SEAL COMPANY, BALTIMORE, MD.

World's Largest Makers of Closures for Glass Containers

XUM



SKILLFUL design, modern manufacturing facilities and finest color lithography are three excellent reasons for turning to CROWN for metal containers. The fact that the CROWN organization is young and progressive is another. Whenever you need metal containers, we invite you to sample this helpful service. You will find, as many others have, that it pays to deal with CROWN.

CROWN CAN COMPANY, PHILADELPHIA, PA.

Division of Crown Cork & Seal Co.

CROWN CANS

Drums-Pails-Barrels

CROWN can furnish the right container to give your product complete protection and maximum sales appeal. Modern facilities and progressive policies assure you of unsurpassed value and service in meeting your requirements.

INDEPENDENT AND HELPFUL

XUM

On this and the following page will be found a number of closures of various types representing either recent developments or types not previously included in this section of the PACKAGING CATALOG.



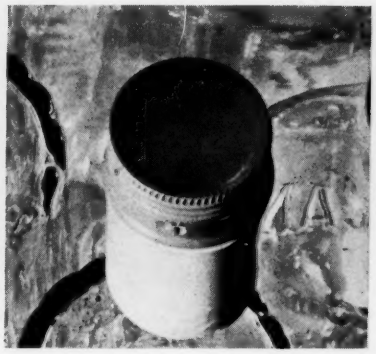




Photos Guardian Safety Seal Co., Inc. **1** **2** **3**







4 **5** **6**

1. Pull-strip cap. One-piece, tamper-proof caps made of aluminum. Closure is opened by pulling weakened strip off in either direction. Long skirt below the thread specially designed so that re-closure may simply be dropped on as dust cap in busy bars. **2.** Laboratory cap. Open topped, tamper-proof aluminum shell to go over special vacuum sealed discs. Opened by pulling weakened strip in either direction. For use when re-closure is not desired. **3.** Break-away cap. Made of aluminum and threaded on the bottle. Breaks open as top is unscrewed while base is held in place on locating lug. Made with long skirt below thread for bar packages and regular pint and half-pint sizes. **4.** Safety cork. Tamper-proof aluminum seal over regular flange cork. Seal is broken by pulling weakened strip off in either direction. Top of seal is engaged to cork so that an embossed aluminum-topped flange cork is provided for re-closure. **5.** Pelican cap. Large tamper-proof aluminum seal over regular cork. Seal is broken by pulling off weakened strip. Disengaged top big enough to serve as drinking cup. **6.** Canisters. Small aluminum tamper-proof cans. The upper and lower parts are engaged so that the top cannot be removed till weakened strip is pulled off. Screw or plain re-closure. Suitable for any kind of embossing and available in all color combinations.

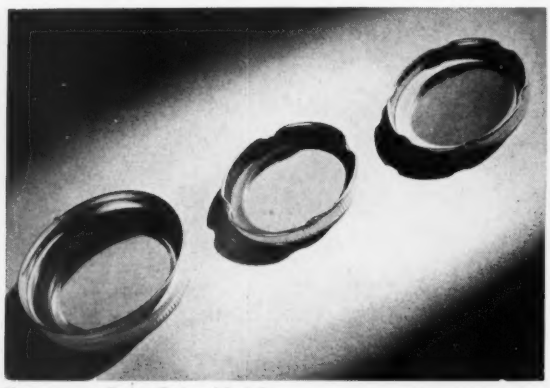


Photo courtesy Crown Cork and Seal Co.

7. Screw and lug caps lined with patented slip rubber ring vulcanized into the caps. For vacuum seal and hermetic re-seal.

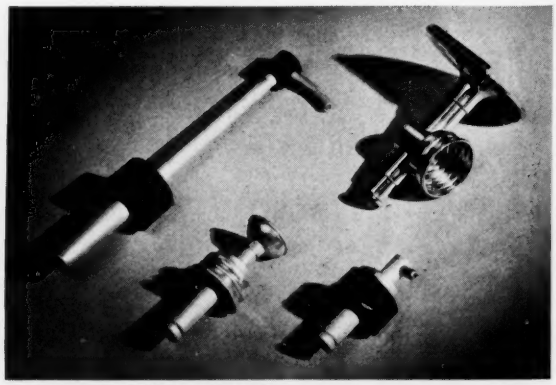
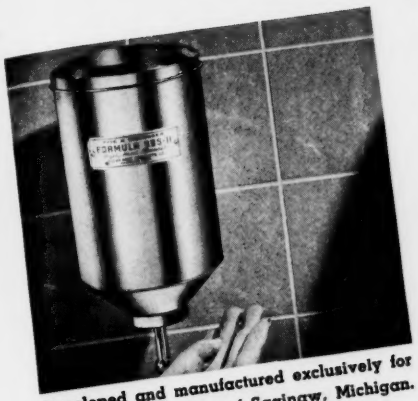


Photo courtesy Scovill Manufacturing Co.

8. Four dispensing closures incorporating a drop-pumping device with either a metal or plastic continuous thread closure.

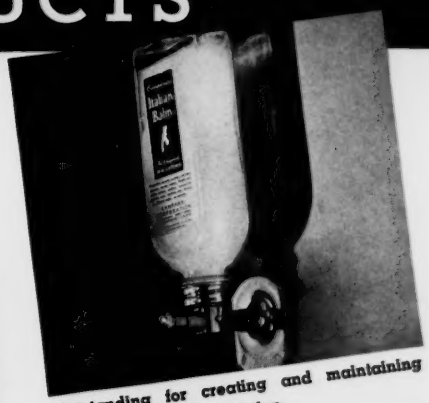
THE LEADERS USE FEDERAL PRODUCTS



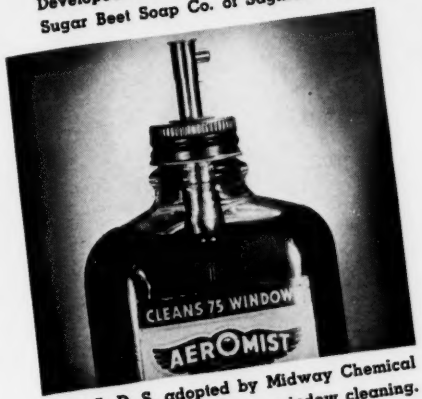
Developed and manufactured exclusively for Sugar Beet Soap Co. of Saginaw, Michigan.



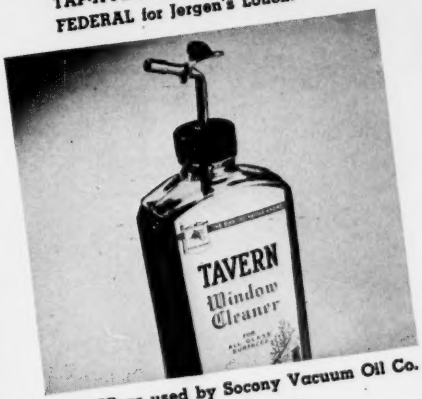
TAP-A-FLOW, designed and built by FEDERAL for Jergen's Lotion.



Outstanding for creating and maintaining sales of Italian Balm Lotion.



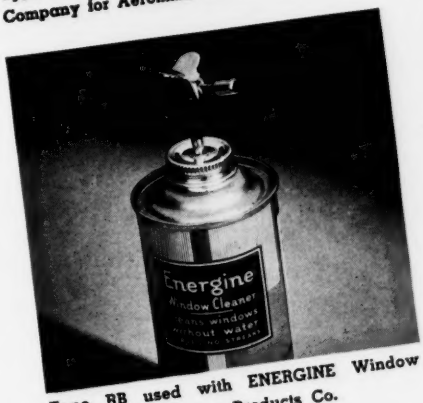
Type S. D. S. adopted by Midway Chemical Company for Aeromist, for window cleaning.



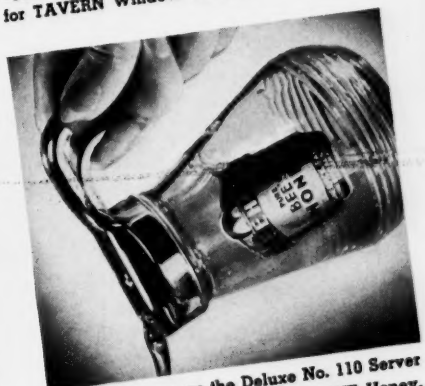
Type RB as used by Socony Vacuum Oil Co. for TAVERN Window Cleaner.



Type RB used by Shell Petroleum Corp. and Shell Union Oil Co., with SHELL GLASS KLEANZIT, for glass cleaning.



Type RB used with ENERGINE Window Cleaner by Cummer Products Co.



Sherlick Farms use the Deluxe No. 110 Server as "Closure Premium" for BEE HIVE Honey.



I. G. A. uses Standard No. 210 Server as a "Closure Premium" with their Maple Syrup.

In each case FEDERAL SPRAYERS—DISPENSER OR SERVER—were selected to help stimulate sales and protect resales because they made the use of the product economical—easy—safe—certain. Take advantage of FEDERAL'S SAMPLE OFFER:

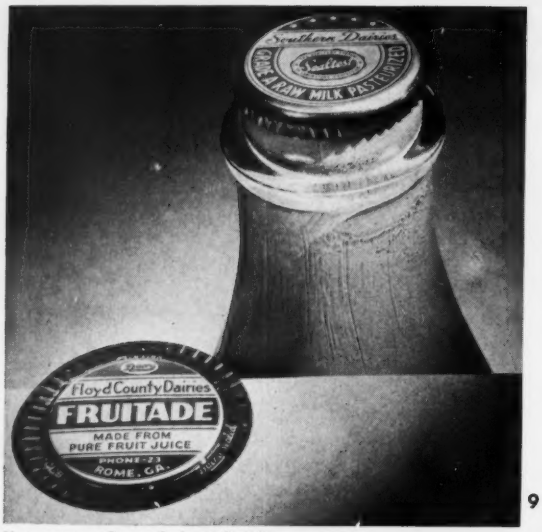
NO CHARGE FOR SAMPLES

Send us your product in its container. Federal will submit samples suited to your product, and made to fit your container.

FEDERAL TOOL CORPORATION

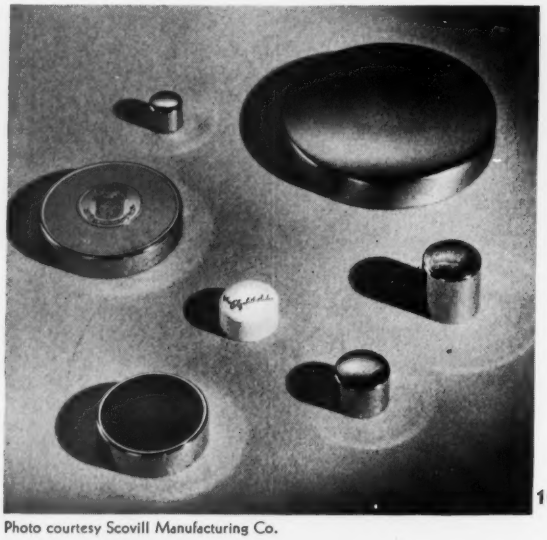
400 NORTH LEAVITT STREET . . . . . CHICAGO

XUM



9

Photo courtesy Crown Cork and Seal Co.



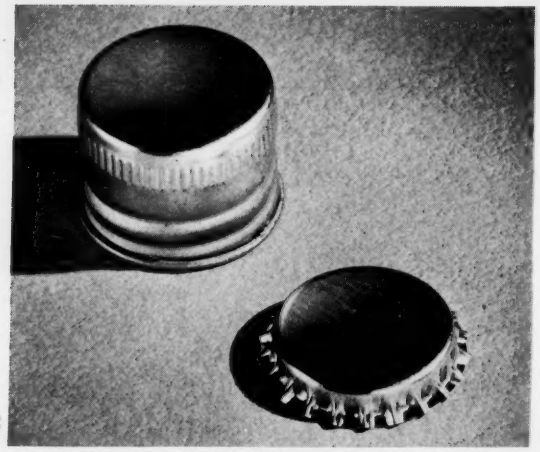
10

Photo courtesy Scovill Manufacturing Co.



11

Photo courtesy Federal Tool Corp.



12

Photo courtesy Crown Cork and Seal Co.



13

Photo courtesy Crown Cork and Seal Co.

9. Dacro cap for milk bottles. Made in the form of flat, metal, paper-lined discs, packed in sealed tubes containing 500 each. In the capping machine, the discs are fed automatically to the capping heads and formed over the top of the bottle, making an air-tight, tamper-proof seal covering the top and pouring lip of the bottle. Aluminum-coated tin plate is bonded to a sanitary paper liner and may be decorated in one or more colors as desired. For use on bottles with patented Dacro finish.

10. Decoratively finished, close-fitting single-shell closures with locking members concealed on the inside surface and invisible from the outside. The locking members are formed by shearing down and rolling a section of the metal shell wall. Available for either continuous or intermittent type threads.

11. Premium type dispensing closure for thick, viscous fluids such as honey. Trigger action draws back a spring device. Release of trigger effects instant cut-off of flow.

12. Short friction catsup cover cap for use in combination with a crown cap.

13. V. P. O. (vacuum pry-off) cap. Vacuum top seal for pry-off finish. Indentations in the side of the cap also provide a mechanical lock to hold it firmly in place, thus making an air-tight and water-tight re-seal.



THE BREAK-AWAY BAR CAP

GUARDIAN SAFETY SEALING

FOR *Sales* APPEAL

Does your present closure *Sell?*

Guardian Safety Seals have helped the sales of many of the country's leading brands of wines and liquors for years because they bring to the finished package . . .

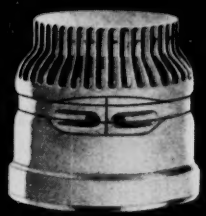
- Hermetic Sealing
- Distinctive Appearance
- Quick Opening
- Handy Reclosing
- Absolute Guarantee Against Substitution

The tested and proved sales appeal of Guardian Safety Seals is now available at competitive prices in many variations to packagers of Cosmetics, Cleansing Fluids, Drug Items such as Ampules and Lozenges, Food Products, Germicides and others as well.

Whatever your product, Guardian Safety Seals can help you seal it and sell it.



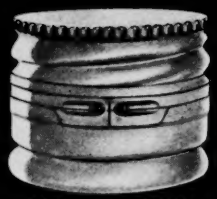
THE CANISTER
Small air-tight package, complete in itself.



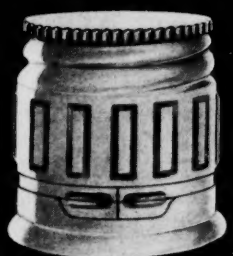
SAFETY CORK



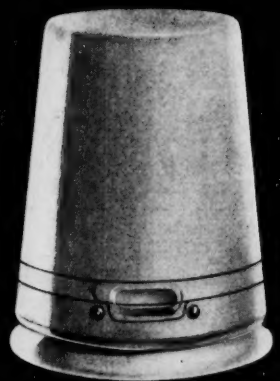
OPEN TOP SINGLE SEAL



THE PULL-AWAY



PULL AWAY BAR CAP



THE PELICAN

CUSTOMERS APPRECIATE THE COURTESY OF "EASY OPENING"

Try a Sample FREE

Let us show you how the Guardian Sales Appeal may be applied to your product. Send us your present package and we will return it to you together with suggestions as to color, design, and the savings and merchandising possibilities of appropriate types of Guardian Safety Seals.

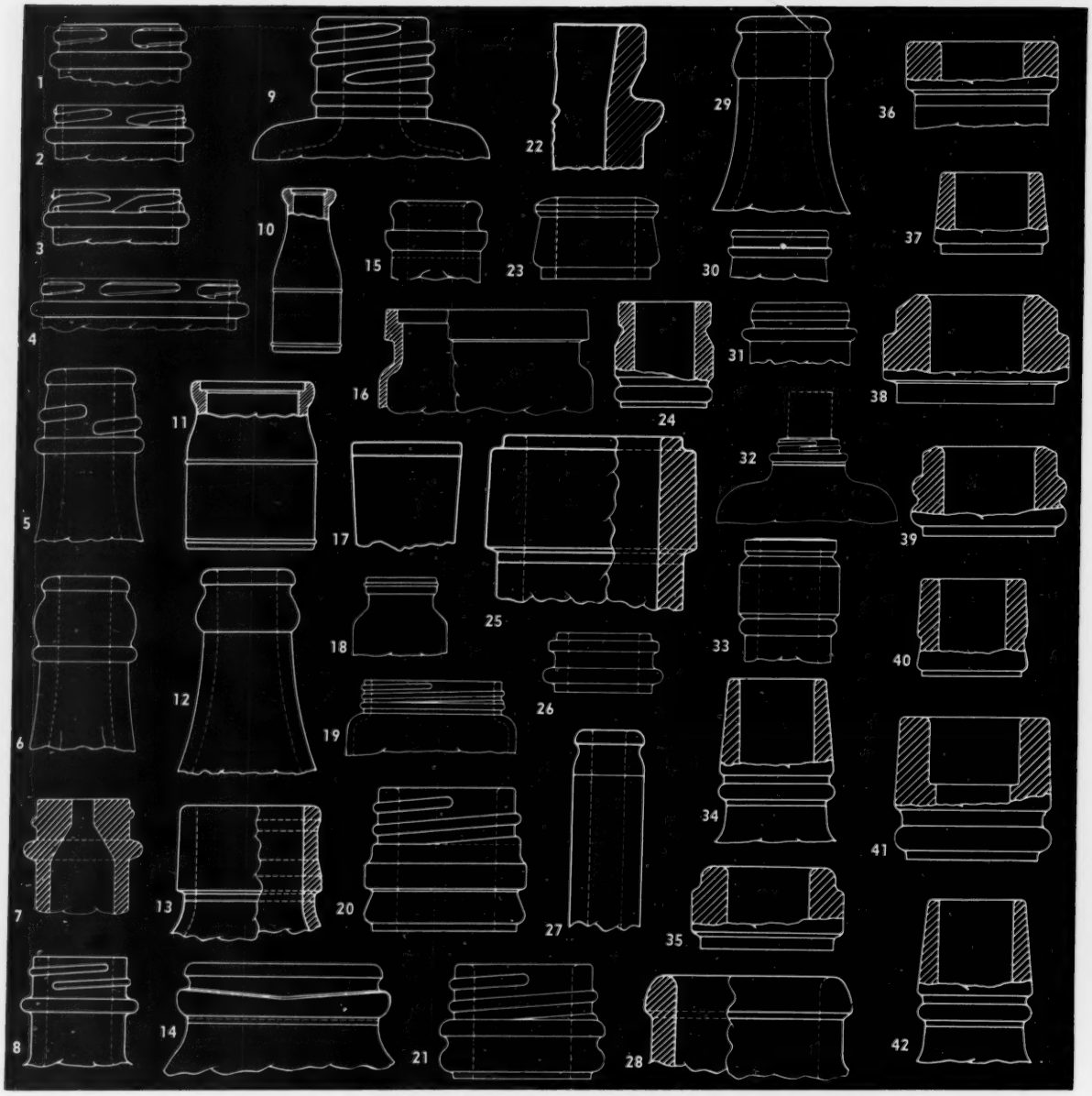
If you wish to consider Guardian's distinctive qualities in a new brand or type, send us an outline of your problem. Our Packaging Committee will send you practical and helpful suggestions without obligation to you.

Address your request to Dept. M, Guardian Safety Seal Co., 35 E. Wacker Drive, Chicago.

GUARDIAN *Safety Seal* CO.

35 EAST WACKER DRIVE • CHICAGO

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Diagrams furnished through the courtesy of the Glass Container Association of America

GLASS FINISHES FOR CLOSURES

1. Two-lug Amerseal
2. Four-lug Amerseal
3. Four-lug vacuum Amerseal
4. Six-lug Sterling
5. Four-lug Sterling
6. Six-lug Amerseal
7. Three-lug Sterling
8. Combination tamper-proof
9. Duplex
10. Shallow continuous thread
11. Combination screw cap
12. Combination friction cap
13. Tall continuous thread
14. All glass sprinkler top
15. Crown beverage
16. Siphon bottle
17. Kork-N-Seal standard
18. Band cap
19. Anchor or friction
20. Small size Crown
21. Anchor bead
22. Variable ledge Pry-off
23. Goldy
24. Long Corseal
25. Milk bottle
26. Cottage cheese jar
27. R. O.
28. White Pry-off
29. Tamper-proof and alter-proof
30. Roverseal
31. Non-pressure Crown or Goldy
32. Straight ledge Crown Pry-off
33. Pry-off for Anchor "F" cap
34. Combination cup cap
35. Frankfort style
36. Brandy cork
37. Sauterne or cognac
38. Upressit
39. Square ring cork
40. Gin
41. Champagne
42. Italian vermouth
43. Standard wine
44. Glass stopper and shell cork
45. Guardian safety seal



Here's what they say about Sealing Gaskets



The Closure Manufacturer: Here's what I want in a sealing gasket — first, one that's easy to apply, doesn't give factory headaches; second, one that I can count on to give a safe dependable seal that is right for my customer. That's why I use Gold Seal Cap Compound exclusively in all my caps.



The Packer: I leave the technical questions of sealing gaskets to my closure supplier. But I know I feel safer now he tells me he's using "Flowed-In" gaskets, specially built for the needs of my pack — and backed up by research that assures me that when I have a new sealing need he can give me a gasket that will take care of it.

The Retailer: Sure, I'm interested in packaging. I find goods are easier to sell when they're packed for easy opening. They're the brands my customers buy regularly — and the brands I reorder.

GOLD SEAL CAP COMPOUND can give *your* closures these selling advantages. Why not investigate the possibilities it opens up for new types of containers in glass or metal?

DEWEY AND ALMY CHEMICAL COMPANY

CAMBRIDGE **OAKLAND** **MONTREAL**

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CLOSURE LININGS

by E. C. EMANUEL*

Closures influence the success of a glass container to a large degree. The sealing security that a closure provides is the manufacturer's assurance that the quality he packaged at his factory is still intact.

Many factors have an influence upon the condition of the product packaged in glass: the reaction of the product on the liner; the length of time the merchandise is held in the retail store; characteristics of the liquid—whether it is highly volatile, as in the case of organic solvents—or whether it possesses a tendency to spread into a very thin film, as in the case of the viscous oils; and many other considerations that are typical of individual products.

Since the liner represents a very tiny factor in total package costs, price considerations should influence, as little as possible, a manufacturer's selection of a liner to protect his product. Unless the liner is providing maximum protection for the product, it is worthless at any price. Furthermore, while a liner may satisfactorily seal the product marketed by one manufacturer, it does not follow that another product of a similar nature (but with a slight change in formulation) will be satisfactorily sealed with the same type of liner.

To obtain the most dependable liner, laboratory recommendations by the cap manufacturer should be obtained—and the cap manufacturer's recommendations should, in turn, be checked by the laboratory of the manufacturer who packages the merchandise. Often it is desirable to run tests for extended periods of time. If the product is of considerable value, or of definite germicidal strength, tests ranging from six months to one year are often set up. In the case of products possessing germicidal strength, a reaction with the lining material may possibly take place.

Liners may be divided into two fundamental classes: (a) homogeneous and (b) duplexed or faced.

The homogeneous liners, such as natural cork, cork composition, rubber and the special solvent type materials used to retain organic solvents, are generally used for special purposes. Natural cork and cork composition may be used for oils in the medium or higher viscosity range—and for products sold quickly, where the shelf life is not over six months. In the case of products that contain volatile solvents, natural cork and cork compositions are not generally recommended.

Rubber liners find general use for alkaline preparations, the hypochlorides and certain acids. They are especially adaptable to caps equipped with wells or posts. Certain of the organic solvents—the hydrocarbons (gasoline) and the chlorinated solvents (carbon tetrachloride)—swell and deteriorate rubber. Therefore, special highly compounded liners are indicated where post type caps are used with such products. Solvent liners are indicated where organic solvents are to be retained, since these liners are protein in their nature.

Duplexed liners (facings applied to a backing material) are not suitable for post or well type caps, since the efficiency of this type of liner depends upon the facing material employed. In post or well type caps, the liquid will contact the backing material at the juncture of the post or well, since the liquid can pass through this space. A suitable homogeneous liner must, therefore, be chosen to effect proper sealing, supplying, at the same time, suitable resistance to the liquid in question.

Several types of backing material may be supplied for duplexed liners. Pulpboard, newsboard, white or gray felt and various types of cork compositions are the materials most commonly used for this purpose. The felts are rapidly losing favor and the standard materials most widely used are pulpboard and cork composition. The backing materials are supplied in various thicknesses to fit the particular bottle cap and glass container finish. Where the bottle finish is good, pulpboard may be used with safety. It is less compressible and does not possess the "comeback" of resilient cork composition. If the product is not difficult to seal and the bottle finish regular, this lower priced material may be used.

In cases where the product is difficult to seal—or where there may be any variations in the bottle finish or cap—cork composition is definitely indicated. Cork can be compressed over a high point in the bottle finish and will also expand to fill a low point or valley.

Facing materials used on the three standard backings are: metallic foils, varnished papers and synthetic facings. Of the metallic foils, tin, lead and aluminum find general use in the order listed. The foil may be mounted to a white sulphite or kraft paper before being applied to the backing material. This combination produces a smooth, neat appearing liner. Tin foil is generally used in .0015 in. thickness.

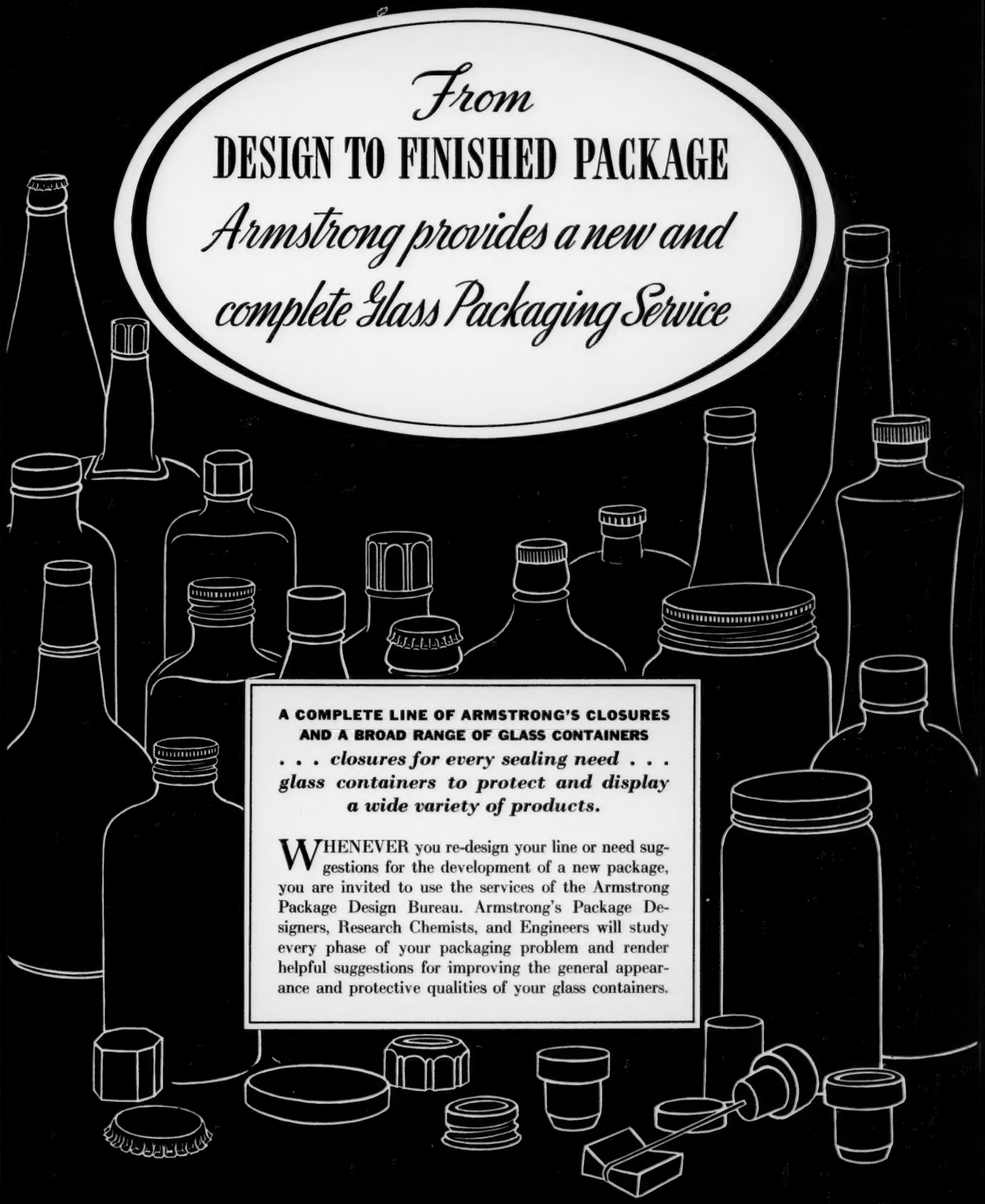
Lead is occasionally used for industrial products such as varnishes, varnish removers and paint thinners.

Varnished papers consist of paper (kraft or drab express) coated on one or two sides with one or several applications of a water-resistant or special type varnish. The common types are pale yellow oil, regular yellow oil and black alkali paper. The regular yellow oil paper (often classified as light brown oil) is generally used for food products such as mayonnaise, peanut butter, pickles, etc. The pale yellow paper is used for maraschino cherries and other food products.

Black alkali paper finds its use in cosmetic and pharmaceutical preparations. It is resistant to mild alkalies but is not resistant to the stronger alkalies. None of the varnished papers are indicated in connection with sol-

* Armstrong Central Technical Laboratories.

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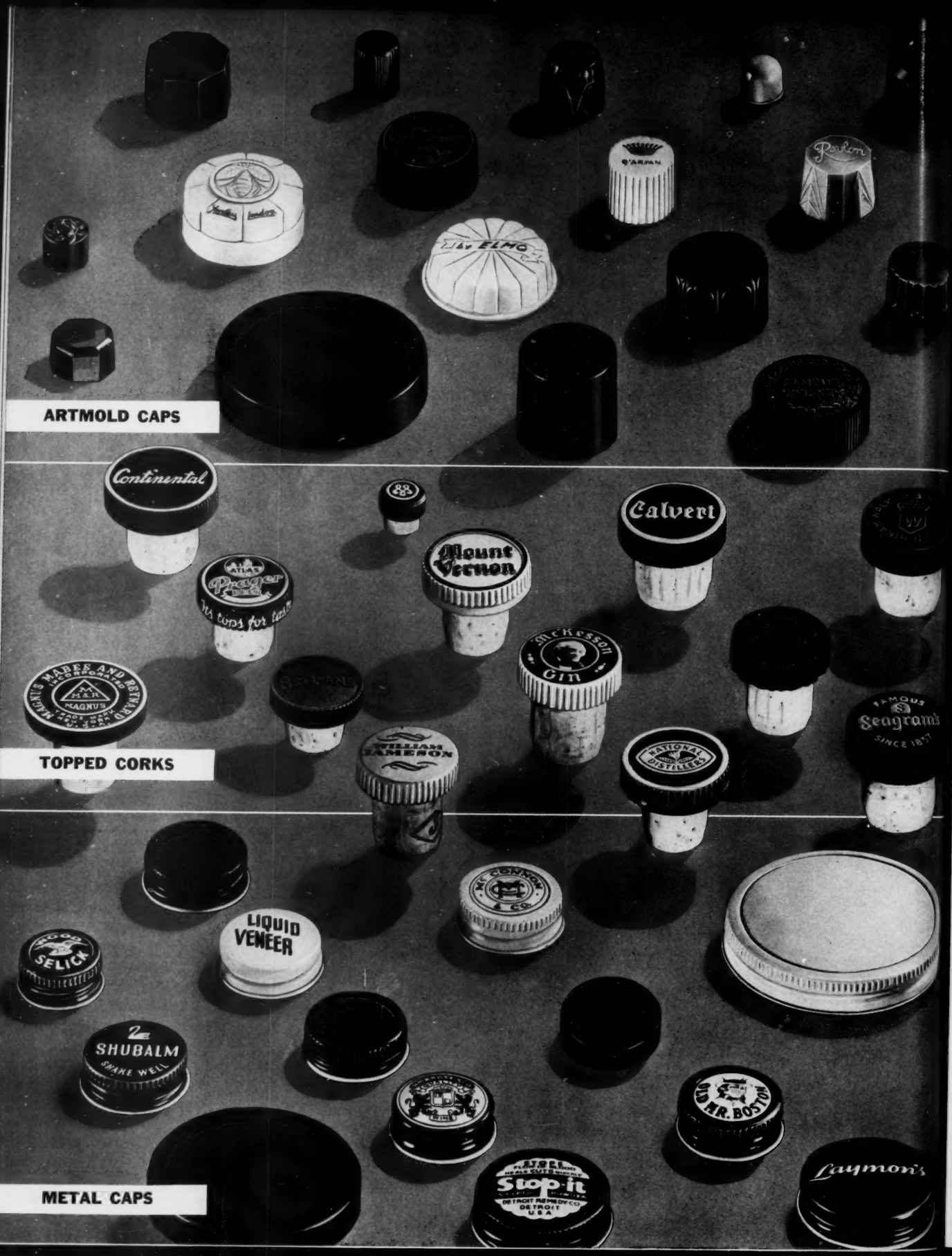


A COMPLETE LINE OF ARMSTRONG'S CLOSURES AND A BROAD RANGE OF GLASS CONTAINERS

. . . closures for every sealing need . . . glass containers to protect and display a wide variety of products.

WHENEVER you re-design your line or need suggestions for the development of a new package, you are invited to use the services of the Armstrong Package Design Bureau. Armstrong's Package Designers, Research Chemists, and Engineers will study every phase of your packaging problem and render helpful suggestions for improving the general appearance and protective qualities of your glass containers.

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ARMSTRONG IS GLASS AND CLOSURE HEADQUARTERS COR

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SELECT THE *Right* CLOSURE AND GLASS COMBINATION FROM THIS COMPLETE LINE

ARMSTRONG is truly "Glass and Closure Headquarters" because, in addition to the line of Armstrong's Closures for every sealing requirement, glass containers for a wide variety of products are now available. Armstrong's packaging recommendations are never prejudiced in favor of any one combination of closures and glass because Armstrong manufactures a complete line of metal caps, molded plastic caps, crowns, and corks of all types. From this range of corks, caps, and glass containers, the units best suited to your individual requirements may be selected.

ARTMOLD CAPS and Jar Covers give packages a "finishing touch" of beauty and refinement. They are carefully molded from high quality molding compounds and are popular with users because of their beautiful colors and satin-like finish that is pleasant to the touch. These closures are available in stock designs—or custom molded to specifications.

TOPPED CORKS combine all the advantages of a good cork seal with the beauty and practical merits of a handsomely decorated wood, metal, or molded plastic top. Wood-Top Corks may be embossed in two colors with a trade-mark or design. Metal-Top Corks may be lithographed in any number of colors . . . and Molded-Top Corks are available in a wide range of beautiful colors and may be specially molded with private designs.

METAL CAPS and Jar Covers are manufactured in single-shell and double-shell types for both narrow-mouth and wide-mouth glass containers. They are supplied in attractive colors or lithographed with private decorations to your specifications. All Armstrong's Metal Caps are carefully formed from fine-grained, ductile metal.

GLASS CONTAINERS in both stock and private mold designs are available to manufacturers of glass packaged merchandise. The high quality, clear visibility, and distinctive contours of Armstrong's glassware are packaging advantages that create increased sales.

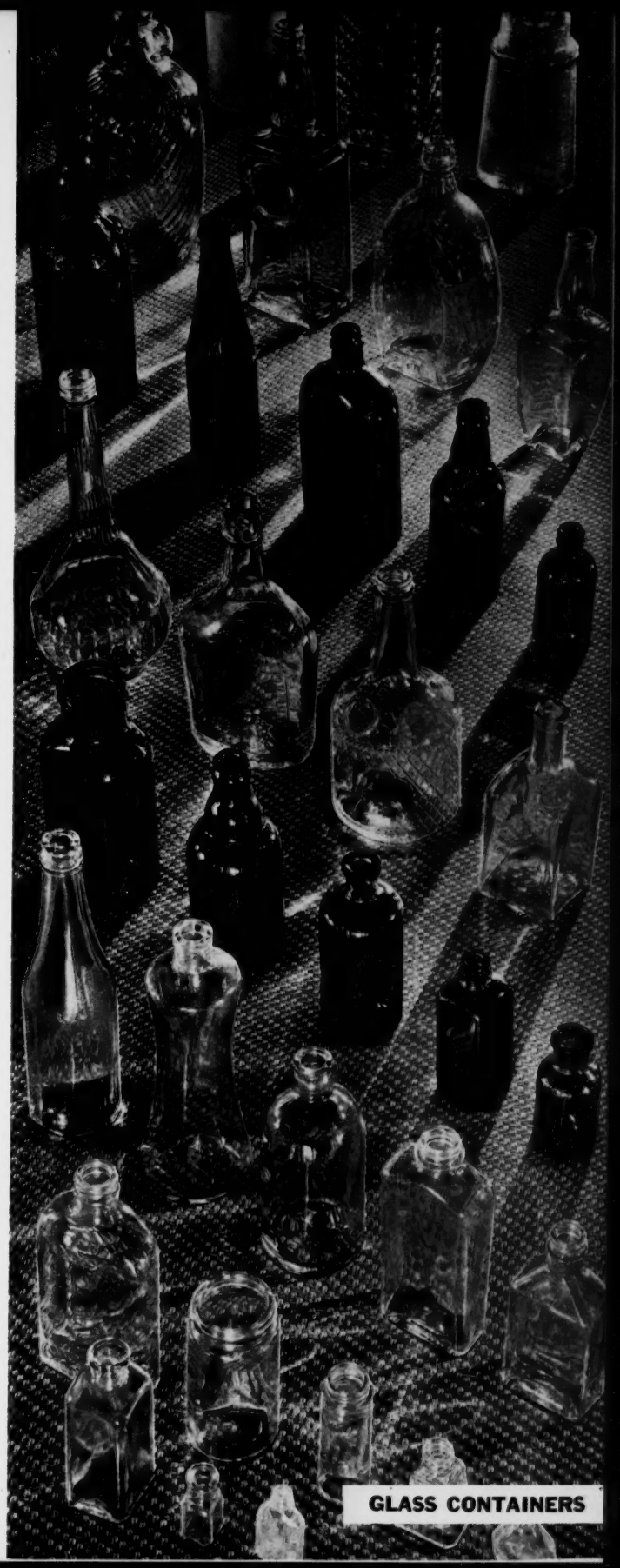
Included in the Armstrong stock line are Liquor Ware, Medicinal and Toilet Ware, and General Purpose Ware.

In manufacturing glass containers for a wide variety of merchandise, Armstrong's constant supervision of every operation and rigid specifications for checking every detail assure you of dependable, attractively styled bottles that are consistently high in quality.

FOR QUICK, EFFICIENT SERVICE ON PACKAGING PROBLEMS CALL OR WRITE THE NEAREST ARMSTRONG BRANCH OFFICE

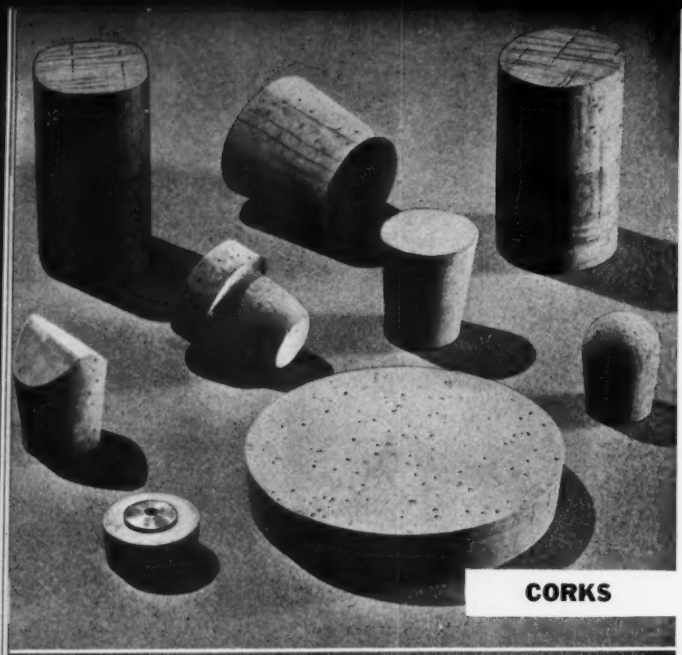
Armstrong's branch offices are located in principal cities to assure quick, efficient service. A telephone call or letter will bring an Armstrong glass packaging specialist at your convenience.

ATLANTA ~ BOSTON ~ CHICAGO ~ CINCINNATI ~ DETROIT ~ NEW YORK
PHILADELPHIA ~ PITTSBURGH ~ ST. LOUIS
I. F. SCHNIER COMPANY (Pacific Coast Distributor)
LOS ANGELES ~ SAN FRANCISCO ~ PORTLAND

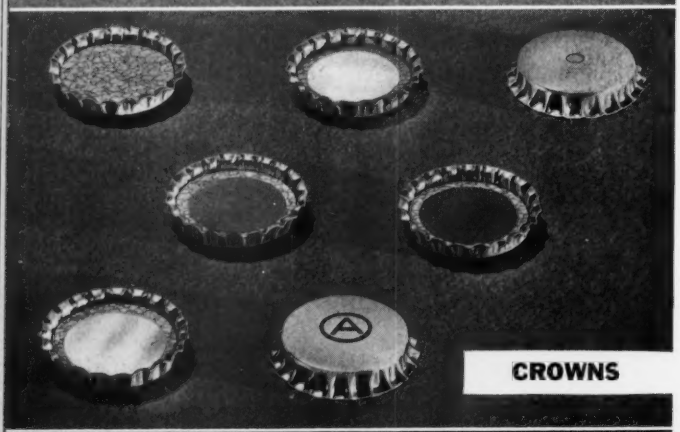


RS CORKS, CAPS, GLASS CONTAINERS (WHITALL TATUM LINE)

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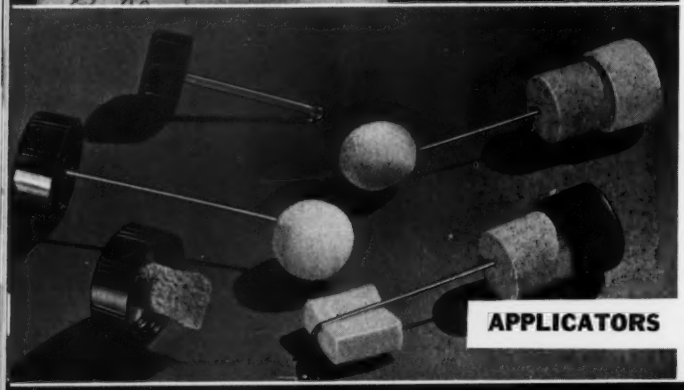
CORKS



CROWNS



"CEL-O-SEAL"



APPLICATORS

CORKS of all types for sealing a variety of products. All are accurately shaped . . . and each cork closure is twice inspected before being packed for shipment. Armstrong supplies straight corks, flange corks, champagne corks (tirage and expedicion), tapered corks, shell corks, wood-top corks, round-top corks, wedge-top corks, and orifice reducers.

CROWNS used for sealing beer, carbonated beverages, mineral waters, syrups, fruit juices, and other food products are available in stock designs, proprietary designs, or with specially lithographed decorations. Discs or liners are made of resilient cork—either plain or faced with tin foil, aluminum foil, or varnished paper.

"CEL-O-SEAL" caps and bands are made by du Pont and sold by Armstrong for use on liquors, drugs, food products, beverages, etc. They fit over any type of closure and shrink tightly in place. When impregnated with your trademark, by the du Pont patented process (U. S. Pat. No. 1997769) they prevent illegal duplication of your package.

APPLICATORS are supplied with glass rods, glass droppers, quill brushed, twisted-wire brushed, metal handle brushed, cotton, felt, and wool applicators on wire—and sponge rubber applicators on glass rods. They are available in combination with molded plastic caps, embossed wood-top corks, and also tapered corks.

A MODERN LABORATORY FOR TESTING PACKAGES

In order that the glass containers, closures, and cap liners that make up your package may be of the types best suited for use with each individual product, Armstrong maintains in its Central Technical Laboratory at Lancaster, Pennsylvania, a department devoted to the testing of materials used in the design of modern glass packages.

It is the responsibility of this laboratory to (1) determine the different combinations of glass, closures, and liners best suited to specific classes of products . . . and (2) develop (through careful study) individual recommendations for individual products.

Armstrong's laboratory, package design, and engineering facilities are available to every manufacturer of glass packaged merchandise. Give your package the protection and style available through this service. For complete information, telephone the branch office nearest you—or address Armstrong Cork Company, Glass and Closure Division, 910 Arch St., Lancaster, Pa.

ARMSTRONG CORK COMPANY

Glass and Closure Division — **Lancaster, Pennsylvania**

BRANCH OFFICES

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ARMSTRONG'S CORKS, CAPS, GLASS CONTAINERS (WHITALL TATUM LINE)

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vents, essential oils or products containing over 50 percent alcohol. They possess a varnish-like odor and tend to transmit a slight off-taste to mildly flavored products. Several patented and trade name varnished papers are available which have improved resistance to acids, alkalies and certain solvents.

The synthetic facings are Vinylite and Panaseal. Vinylite is basically a co-polymer of vinyl acetate and vinyl chloride. Panaseal is made from a rubber base that has been highly refined and chemically modified. These two facings are mounted on white sulphite paper, are white in color and neat in appearance. They are tasteless and odorless and are appropriate for use with a wide variety of products. Certain essential oils and organic solvents attack them. They are, however, more resistant than varnished papers, less permeable to water and outstanding in their freedom from taste and odor. While not all-purpose liners, Vinylite and Panaseal give excellent service with very many products.

Waxed papers are also used as liner facing materials. Quality white waxed paper (a material waxed on two sides) has been generally used for aqueous creams. It is not an ideal liner because, once having been flexed, a crack may appear in the surface which will permit the transmission of moisture to the backing. In addition, if the cap is tightly applied—or the sealing surface of the container is sharp or rough—the wax may be ruptured so that evaporation can then take place.

One interesting new development involves the use of woven glass fabric, wax impregnated, as a liner for the new Polystyrene closures used on acid-containing bottles.

The most satisfactory solution of liner problems lies in testing of the various materials with the product to be sealed. Leading cap manufacturers maintain laboratories to assist the manufacturer in the proper selection of a liner for a new or standard product. It is profitable to patronize these services. Be certain that the liner has a factor of safety for it is the liner, cap and container that constitute three equally important links in placing the glass packaged product in the hands of the consumer in factory-fresh condition. Any failure of one of these three results in disappointed customers.

PRINTING ON GLASS AND PLASTICS

Several methods have been brought to a high degree of perfection within the last two or three years for the application of color directly to glass containers to achieve decorative labeling effects of the highest order.

Application was first restricted largely to the dairy field and then extended, through the adaptation of decorated tumblers, for use by cheese, peanut butter and other food packers. Today such "labels" are used very widely in the cosmetic, pharmaceutical and proprietary fields and the method of decoration has been applied not only to glass, but to plastics and ceramics as well.

Fused-in colors are applied by the container manufacturer and are a part of the package itself, eliminating the label process. This factor has greatly encouraged the use of containers bearing such decoration in fields where bottles are returned to the manufacturer for re-filling. When paper or other labels are used, the necessity in such cases arises for the removal of the old label and for the application of a new one. The fused-in "label" eliminates both of these steps.

Fused-in colors are applied to the glass and then fired in. They are therefore not to be confused with cold colors which are painted or silk-screened on. Since the color becomes virtually an integral part of the container,



1. Applied color has been used on tumblers for an increasing number of food products.



2. Cosmetics and toiletries in both glass and plastics decorated by the Anigraphic Process.

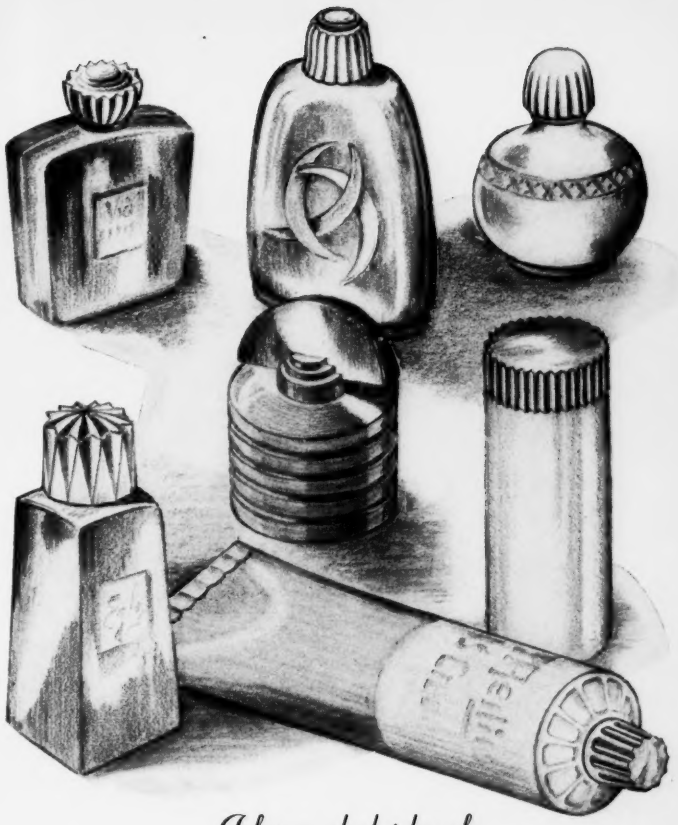


3. Applied color on milk bottles is an ideal means of branding these return containers and of cross advertising one product on the container of another. Photo courtesy Owens-Illinois Glass Co.

counterfeiting of the product when packaged in such a container is practically impossible. Duplication of the package requires specialized technique and equipment offered only through a limited number of sources. Experience shows that the percentage of returns for re-use containers is increased when fused-in "labels" are used.

Gloss colors for use over glass are a combination of a flux or low-melting glass (80–90 per cent) and a pigment or ceramic color. Most of these colors have been evolved since 1910. The first colors developed were soft and lacking in flux resistance. Only within the past five years have resistant colors been developed. The first of these was used on milk bottles and required a temperature from 1070 to 1100 deg. F. to develop gloss.

The new super-resistant colors stand up under conditions which would destroy ordinary color. They are far more resistant to sunlight, acid, vinegar, sulfides in air and food, alkaline detergents, and hot water than the colors formerly available and used for glass. They are available in practically all shades in a full range of brilliant colors—red, orange, yellow, blue, green and violet. All degrees of pastel colors down to very pale



A few rough sketches of interesting caps for bottles, cans and tubes

Packaging artistry through the added charm of Victor Caps

Choose the cap that fits the personality of your container

Some of today's designs for tomorrow's delivery. In all standard sizes and colors.



This exquisite dome cap is ideal for nail polish and perfume packages. Ask for Number 60—size 15

The King cap adds royal dignity to any bottle. Available in sizes from 8 m m to 38 m m





An attractive cap constructed especially for holding a dropper

A dignified cap in a lustrous finish made to standard dimensions





Tassel cap in dainty design. Available in two sizes 8 m m and 10 m m

A ball cap dignified by its simplicity. In various colors. One size 10 m m



Victor Metal Products Corp'n

196 Diamond Street
BROOKLYN, N. Y.

Turn to page 225 for interesting containers by Victor

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tints are used in spray operations, usually to cover the entire surface of the container.

In the application of ceramic colors to glass, considerable progress has been made. Machines are now in use which will band from two to eight colors simultaneously and several times faster than previously obtained by hand. Spray guns have been modified to give much greater speed, lower color loss, and to do specialty designs as well as the conventional all-over spray. Silk-screen stencils, mechanically operated, have recently come into wide usage and are now employed to print from one to five colors on the glass surface.

Recent developments of at least one of the available processes include the printing of four colors in a single operation. Half tones and line drawings, it is claimed, may be accurately reproduced.

We are indebted to E. I. du Pont de Nemours & Co., Inc., to the Owens-Illinois Glass Co. and to Anigraphic Process, Inc., for information and advice in the preparation of this article.



4. Applied color lends itself to an infinite variety of decorative effects and lettering styles. The color of the product itself should be anticipated in planning color schemes for such decorated containers. Photo courtesy Owens - Illinois Glass Co.



5. The technique of color application has today advanced to the point where such labeling can be done on almost every type of bottle surface. Here the labels appear on a compound curve. Photo courtesy of the Owens-Illinois Glass Co.

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SECTION SEVEN

LABELS, SEALS, TAGS

Pages 269 to 286

PACKAGE LABELS

TRANSPARENT LABELS

EMBOSSED LABELS AND SEALS

STOCK LABELS

MERCHANDISING TAGS

PACKAGE ADVERTISING LITERATURE

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PACKAGE LABELS

by M. C. FENTON, JR.*

So many buyers of labels think that the label manufacturer can "press a button" and produce his label; they do not realize the various steps necessary before the label is completed.

Let us suppose there is a buyer who requires a label for an entirely new package. He may, or may not, have an idea of what he wants, except that he wishes the finished product to be thoroughly adaptable to his needs and attractive. In this instance, a salesman must keep his eyes and ears open to catch any faint hints as to what the ultimate label should be. He transfers what meager information he has to the artist, who is especially qualified and trained to solve such problems. When the sketch is completed, the salesman returns it to the buyer and, if he is fortunate, the buyer approves the sketch. In most instances, however, this will not be the case; he may have to make several other sketches or at least several revisions of the original sketch before he is in a position to proceed with the necessary original engravings. After the engravings are made, a proof must be pulled and again presented to the buyer for his approval or correction before proceeding with the printing or lithographing of the label.

In the case where it is only necessary to reproduce an existing label or wrapper, considerable time can be saved, for it will be necessary only to make the original engravings from the sample furnished, pull proofs and, after proofs are accepted, proceed with the manufacture of the labels ordered.

If one stops to think, it is perfectly obvious that these various steps require time and that it is to the advantage of both the buyer and seller to allow as much time as possible for these operations. Taking into consideration the two cases cited above, a reasonable length of time on the first one would be four to six weeks; in the latter case, three to four weeks.

* Vice-President and Secretary, The National Color Printing Co., Inc.

1. Glass labels are usually designed to permit the display of the product through the walls of the container. Die-cut shapes are frequently worked into harmony with the container design. Note, however, how some glass packed products utilize labels deliberately designed to obscure the view of the product, as in the case of C & B Meat Sauce.



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HOWELL of ELMIRA

Labels, boxes and

ADVERTISING DISPLAYS

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HOWELL of ELMIRA

Labels, boxes and

ADVERTISING DISPLAYS

F. M. HOWELL & CO., ELMIRA, N. Y.



2. Package wraps—of either the tight wrap or loose wrap varieties—form the entire visible portion of their packages. Hence the repeating designs here shown. Frequently varnished or lacquered finishes are specified.

In any case, too much importance cannot be placed on accuracy of instructions and specifications. The label manufacturer is making a "tailor made" product and errors are costly to all concerned, since the correction of them is too late after the product is finished.

General Types of Labels

In discussing the general types of labels and wrappers, it is probably best to take up the general sub-division of containers one at a time, with a brief discussion of the types of labels appropriate to its division.

Glass: As the container is transparent, there is no necessity of showing an illustration of its contents. The sole purpose of this type of label is to identify the manufacturer, advertise the brand name, add an attractive touch of color to the package and enhance the value of the product in the consumer's eyes.

Package wrapper: The main function of this style of wrapper is to make an attractive and relatively inexpensive package which will keep the product free from contamination. In the event the manufacturer wishes to bring out the full value of the colors used on the wrapper and at the same time to keep the package clean, fresh and attractive during the period of its use, he may specify varnish or lacquer finish.

Paper box: In some cases, colored box board is used, making a box wrapper unnecessary. The only label required in this instance would be an end label designating commodity, size and the like, such as collar, underwear and shoe boxes.

Tin can: As the container is not transparent, it is important that the label give all pertinent information concerning the contents, in order that the consumer may have an accurate idea of what he or she is buying. This places a double burden on the label. It must make an

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attractive package and, at the same time, have sufficient reading matter to make it truly informative.

Canned food labels have made remarkable strides in the last few years and the art work and the printing or lithographing compares very favorably with advertisements seen in the best magazines of today.

Fibre can: The labels for this type of container are similar to the tin can labels, with the exception that fewer actual illustrations of the contents are used. This label serves the same purpose as the canned food label, in so far as the attractiveness which it lends to the package is concerned.

Case: These labels are usually placed at the end of wood or fibre cases, such as fruit crates, and are multicolored and very elaborate. The remarkable improvement in this class of label has materially added to the increased sale of these commodities.

Shipping: Under this classification will be found tags and stickers of all descriptions. The main function, of course, is to provide a means of writing the name and address of the recipient, with adequate identification of the sender. It also does not prevent them from serving, in some degree, as advertisements, through the inclusion of trade marks, advertising slogans or specific illustrations.

The stickers usually carry special handling instructions, inspection notices or data regarding service requirements en route.

Methods of Manufacture

There are two methods of manufacture most commonly used today in making labels: one, printed or letterpress and the other, lithographed or offset. The relative merits are debatable, one group leaning toward the printed label, the other toward the lithographed label. Approximately the same effects can be obtained by either method and both require the necessary original art work and engravings. (Special types—such as applied color labels, decalcomania, embossed foil, transparent labels, etc.—are treated in separate articles in this section.)

Printed: The printed label requires electrotypes cast from the original engravings and, on the press, the ink is applied to the electrotypes from the ink rollers and then transferred to the paper by direct contact. This method permits a greater flow of ink and is especially advantageous on solid backgrounds.

Lithographed: The lithographed label requires zinc or aluminum press plates made from the original engravings and, on the press, the ink is applied to the press



3. Box wraps vary from the simplest forms to elaborate multi-color and direct color photographic effects.

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Arrest the shopper's eye. Handcuff attention to your product and the sale is half made. Proper packaging and compelling display proves its own case. Retailers will serve as your jury, turn in a verdict of "sold" every time.

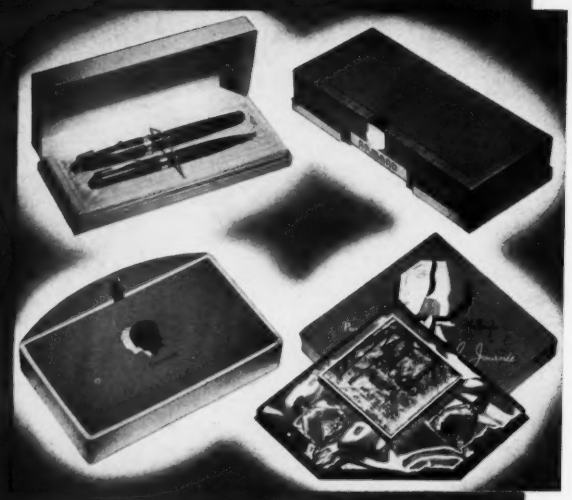
But catching the prospect's eye isn't easy. Getting the prospect's attention before he slips away into the crowd isn't easy either. That's where Dennison comes in with its coordinated packaging, product identification and display facilities. The Dennison staff of artists and marketing experts have been called in for help on hundreds of cases where the customer was getting away. It usually boiled down to an unsolved packaging and display problem, a problem of how to arrest the eye — which Dennison then proceeded to do.

Dennison Manufacturing Co.

Framingham Massachusetts

TURN THE PAGE FOR EVIDENCE

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PACKAGE DESIGN

Your package functions primarily as a container. But it must perform other functions, too. Your package must stop, hold and make the consumer reach out for the product it displays.

The Dennison packages illustrated are practical containers and practical merchandisers at the same time. They were planned not only to hold merchandise but also to create an active sales atmosphere around their contents.

Dennison, in its years of analysis, package design and manufacture, has used countless packaging materials, turned them out with a sales punch in all shapes and sizes, speeded the sale of everything from bath soap to jewelry.



PRODUCT IDENTIFICATION

TEL-U-TAGS — Identify by brand name. Draw attention to your printed sales story right at the point of purchase. Descriptive, informative Tel-U-Tags are designed to do a thorough sales job.

MERCHANDISE CARDS — Package and display combined for small items of specialty, novelty or gadget classification. Ingenious Dennison designers plan these cards to make your product stand out on crowded counters.

LABELS AND SEALS — Aid identification of unpackaged products. Dress up plainer packages. Ideal for publicizing trade-marks on letterheads, envelopes and shipping wrappers. Dennison's range of production facilities offers a wide variety of effects.



PACKAGE DISPLAY

SNAP-UPS — Three-dimensional counter displays in one piece, planned to set off your package or product. Self-assembling, novel and "fool proof." From the basic design of Snap-Up any number of attention-getting variations, large or small, are possible. Snap-Ups are the new counter merchandising sensation.

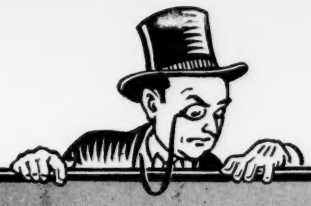
DISPLAYETTES — Gold and silver metallic display pieces, embossed and die cut. Designed to display impressively and quicken the sales of such class items as cosmetics, packaged or unpackaged novelty jewelry, and glassware. Range from simple price tickets to sturdy easel counter cards and small window displays.

On packaging, display, or labeling problems get in touch with the office nearest you:

Dennison Mfg. Co.

LAND n Bldg. | DALLAS Santa Fe Bldg. | NEW YORK 220 Fifth Ave. | PHILADELPHIA Jefferson Bldg. | SAN FRANCISCO Russ Bldg.

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Are You Looking For-



- **Labels that stick to *waxed* cartons?**
- **Tape that sticks to *waxed* paper?**
- **Labels or tape that stick to *parchment?***
- **Labels or tape that stick to *metal foil?***
- **Labels or tape that stick to cellophane?**
- **Moisture-proof bag closures?**

Then Thermium Heat-Seal Papers

-are the answer!

SEAL, INCORPORATED -- SHELTON, CONN.



¶ **This nimble fellow is rolling a Thermium Label (which lies on a "warm plate") on to a *waxed* paper can.**

¶ **What fun!**

¶ **But the label won't *stick* to the *waxed* paper, *will* it?**

¶ **Ah, but it *will*. And truly, it *does*. Moreover *how* it sticks!**

¶ ***Most* surprising!**

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4. Tin can labels show an increasing use of direct color photography and more detailed informative labeling on their rear faces.



5. Fibre container labels serve essentially the same purpose as tin can labels although illustrations are perhaps less frequently used and less elaborate when used.

plate from the ink rollers and then to a rubber blanket and finally transferred from the rubber blanket to the paper by direct contact. This method is especially adaptable to labels carrying half-tone or exceptionally fine screen illustrations.

Any label can be reproduced by either method and the final choice is dependent on factors varying in every case. The average person cannot differentiate between two copies of the same label, if one has been lithographed and the other printed.

Label Materials

Machine finish or book paper: An uncoated sheet used generally on inexpensive labels where a finish such as gloss overprint or spirit varnish is not required. This type of paper works best on labeling machines, because of its softness and flexibility.

Super paper: A highly calendered book paper used on labels, with and without a finish such as gloss overprint or varnish and is relatively inexpensive as compared with coated paper.

Coated paper: Used on the more expensive labels, with or without gold or aluminum bronze, varnish, lacquer or embossing. Even without varnish, the inks are more brilliant, as the coating prevents the absorption of the ink into the paper, thus enabling the ink to dry on the surface and present a glossier appearance.

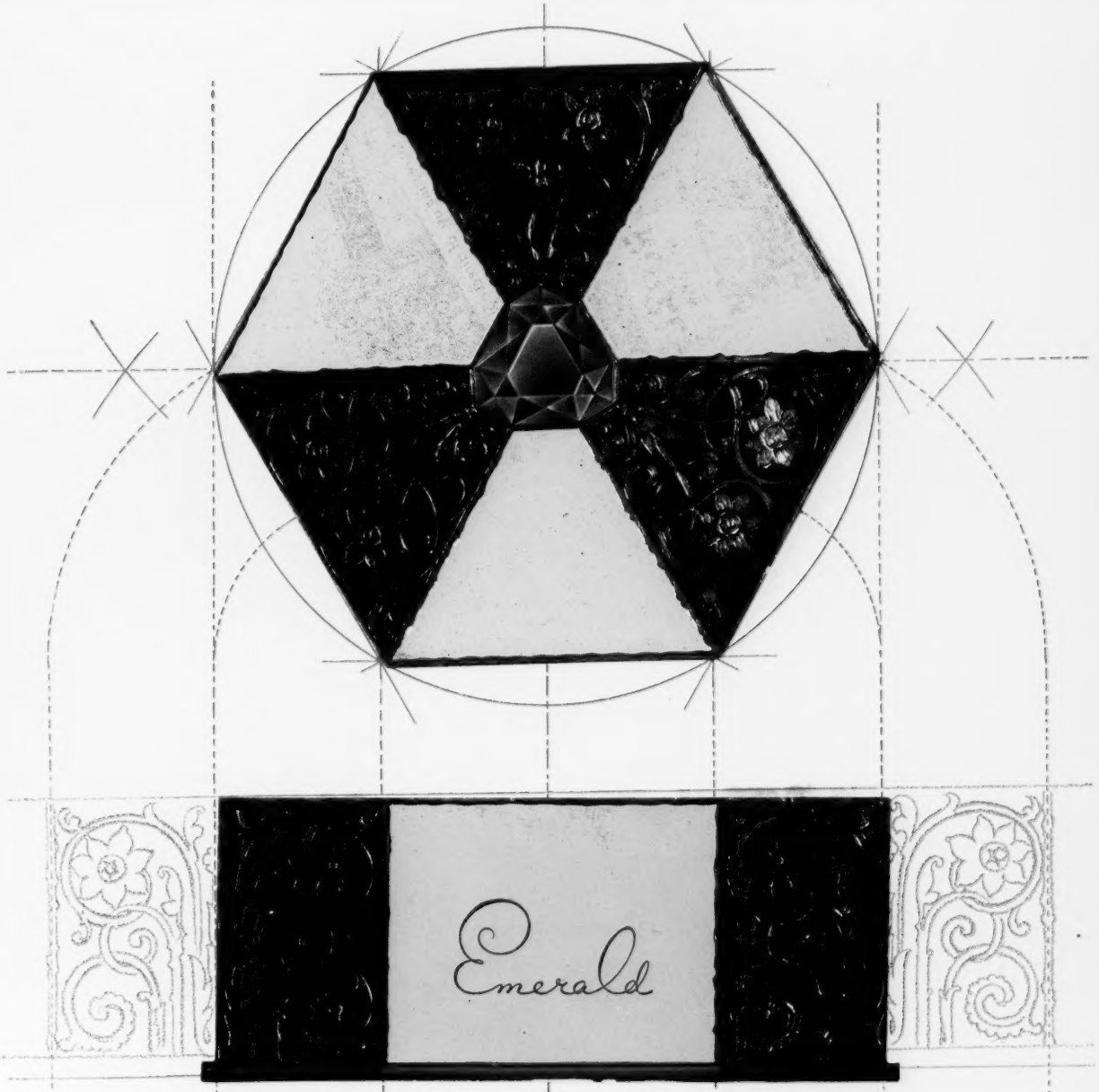
Metallic and foil paper: Used more frequently on cosmetics, condiments and carbonated water. They are relatively expensive as compared with other papers, but in return present a very brilliant, eye appealing and attractive appearance.

Transparent paper: Such as glassine and cellulose, is used where transparency or semi-transparency is desired and has often an added advantage of being moisture-proof.

Inks: They are innumerable in color and are made

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A BOX DESIGN



By

RICHARD M. KRAUSE

INC.

Designers

ENGRAVERS AND PRINTERS

52 East 19th Street

NEW YORK. N.Y.

A Box Design

PROGRESS AND PACKAGING

Package designing to-day, as illustrated on the reverse side of this insert or in the form of a box wrap or label, demands the best from conception to completion. It demands the best in style and design, in balance of lines and colors, in precision, craftsmanship and in materials, yet, it is a problem that must be efficiently and economically solved.

The creation and production of outstanding packaging requires the planning and the technique that comes from years of knowledge and practical experience. Also, progress has brought forth new materials, new processes, new machinery that now open new possibilities to the artist who, conscious of the change and aware of new horizons, is able to create in conformity with the fundamentals of good taste and sound design.

Our long experience in the packaging field together with our up-to-date equipment enable us to continue our efforts to bring to its highest degree of development an art devoted to better merchandising and the success of the products to which it contributes.

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INCORPORATED
Designers-Engravers-Printers
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PACKAGING CONSULTANTS - LABELS - BOX-WRAPS - SEALS - INSERTS - BOOKLETS - DISPLAYS

Chicago Representative: A. J. Andersen, 429 West Superior Street

with various qualities to suit a particular need. For instance, inks can be made to be sun-resisting, alkali-proof, scratch-proof, alcohol-proof, odorless. The uses for inks having any one or two or more of the above qualifications are obvious.

Finishes: In the last decade there has been an increasing demand for labels with a high gloss finish. There are a number of materials on the market which can be applied on the surface of the printed or lithographed label to give this effect. There is one quality which is the common denominator for all finishes—a shiny finish which brings out the brilliancy of the inks and which also prevents soiling of the label.

Gloss overprint or spot varnish: This is applied by press, the same as a color; the entire surface can be varnished, or any portion or portions, no matter how irregular, can be left unvarnished. It gives a fairly high finish and is relatively flexible. It is not moisture-proof, but slightly moisture-resistant. It acts as a bond for the inks on the label and prevents scratching.

Spirit varnish: This is applied by a regular varnishing machine which requires the sheets to pass through a heated box. It has a considerably higher finish than gloss overprint and is especially well adapted for canned goods labels.

Lacquer: Lacquer produces a high gloss finish and can be used on almost any type of label. There are different kinds of lacquer manufactured for special uses, such as moisture-proof, heat-sealing, scratch-proof.

There is a relatively new finish on the market which is a rubber derivative, containing approximately the same characteristics as lacquer and especially adaptable to packages requiring moisture-proofing, scuff-proofing and scratch-proofing.



6. Case labels—among the most colorful of all package labels—are used for fruit and vegetable crates and similar purposes. Display value is a major factor in such instances.



7. Shipping labels, including tags and stickers of all types, vary from stock items to fairly elaborate private labels. Paper stock must be of a type which can accept pencil, crayon and ink markings.

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TRANSPARENT LABELS

With increasing frequency, manufacturers have come to desire a means of attaching to glass containers trade marks, brand names and other label data which will not obscure a full view of the container's contents.

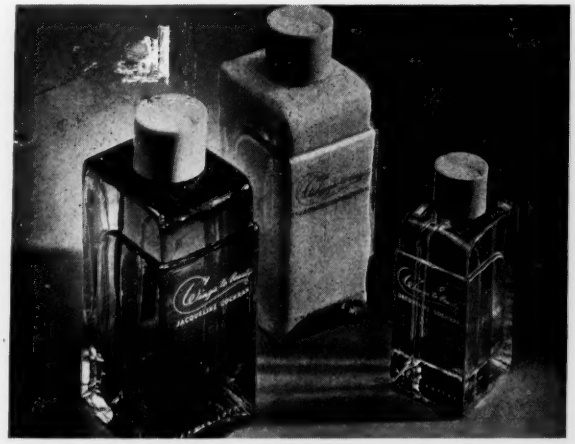
The mounting vogue for rigid transparent containers made of cellulose acetate and nitrate materials and for transparent plastic containers, has likewise demanded labels of this non-opaque type.

Several means have been developed for achieving such label effects. The article on decalcomania labels in the Display section describes one of these processes whereby transfer decalcomanias made with a transparent background are applied to glass containers, wood, plastic or metal packages and, in fact, may be applied to any type of rigid container in a manner which permits either the product or the package surface to serve as a background for the lettering.

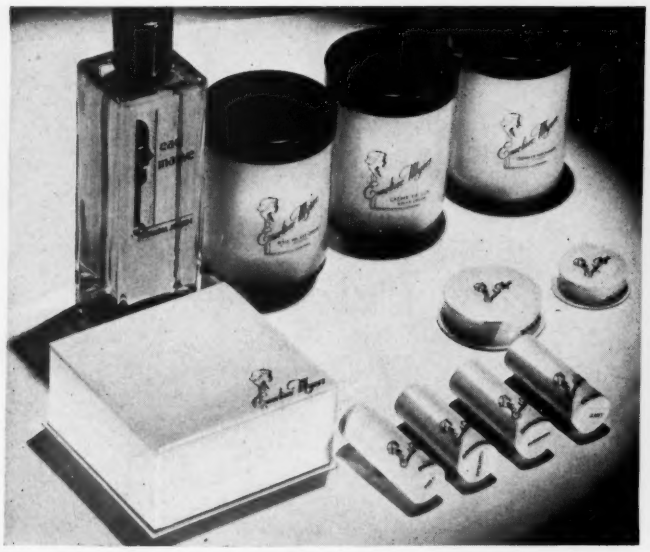
In the glass container field, several methods of applying printing directly to the glass have recently been developed which achieve substantially the same effect. These are fully treated in the article "Printing on Glass and Plastics" in the Glass Container section.

A third method of achieving a similar effect is utilized in the case of rigid transparent cellulose acetate or nitrate containers and displays. Here the sheet material is printed or roll leaf stamped while in the flat and is then fabricated into a three-dimensional container. If such printing is designed so as to utilize no background, the desired transparent label effect is achieved as an integral part of the container.

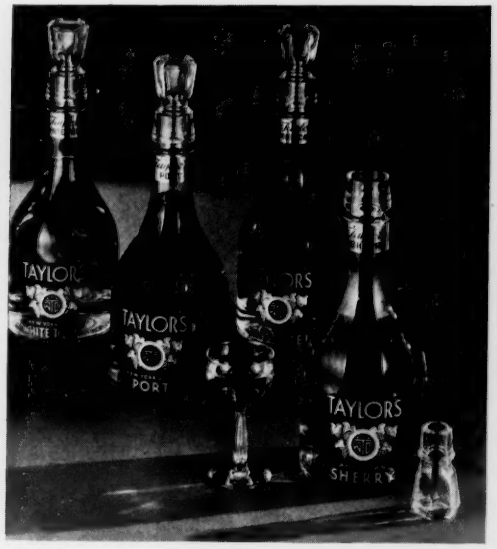
A fourth method involves printing of the label data on cellophane sheet materials backed with a suitable adhesive so that close adhesion to the walls of the glass or plastic containers may be attained. Here again, since the print-carrying material is thin and transparent, the effect achieved is one in which the type and decorative matter seem to be applied directly to the surface of the container. When such printing is applied in reverse to the rear surface of the cellulose material, a label is achieved which is impervious to stains, water, grease, etc. Such labels may be successfully applied to glass, plastics, metal, wood, rigid transparent cellulose and non-absorbent papers.



1. Transparent labels provide a distinguished note for these private mold cosmetic bottles.



2. Transparent cellulose labels contrasting with transparent, translucent, or solid color background of bottles, jars, or other containers.



3. A decalcomania label used on a decanter type wine bottle intended for re-filling in the home.



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Plenty of ideas and suggestions—short-cuts and economies in this forty-eight-page full-color catalog. Write for it today... **IT'S FREE!**

Your needs are our concern... for Ever Ready Label Corporation was in the business of supplying packaging labels of all kinds, long before Packaging became a specialized industry★ With almost a Quarter Century's background Ever Ready KNOWS HOW to handle your packaging label requirements so that you get "more of the best, for least" ★ Write us of your problems--let us help you work things out so that you are supplied faster, better, more economically!

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EMBOSSED LABELS AND SEALS

For luxury type products, such as cosmetics, and for a widening number of more commonly used products, such as liquors, soft drinks, etc., embossed labels and seals are coming into increasing favor. Such seals are most frequently made, in whole or in part, of foils or pyroxylin papers, although other stocks are occasionally used. They feature, as their name implies, highly embossed decorative effects designed to provide a degree of relief which, in combination with the shiny metallic surface of the label, affords a high degree of light reflection and a definite three-dimensional effect.

Very frequently such labels are die-cut to shapes emphasizing the embossing on the surface or body of the label and designed to fit in with other elements of a package design. The manufacture of such labels requires a series of extremely skilled operations beginning with the hand fabrication of embossing dies and continuing through the various steps of printing, embossing, die-cutting and gumming.

Embossed labels and seals may be applied by hand or by machine although probably a higher proportion of such labels—as compared with the more common type—require hand application.

The technique of manufacture applied to the embossed label has, in recent years, been extended to the box wrap field, where embossed portions of a wrap are labeled onto the wrap itself and then the whole applied to the box by standard box-making methods.

Another development in recent years involves the building up of embossed labels, utilizing several materials—various colors of foil or pyroxylin paper. Various segments of such labels are mounted on a carrying stock and reach the consumer as a completely fabricated whole, ready for application to the package.



A typical group of die-cut, embossed labels showing the variety of effects which may be obtained. Photo courtesy Cameo Die and Label Co.

"U-S" TO HELP SELL YOUR PRODUCTS

That is the purpose of every product made by The United States Printing & Lithograph Company and its Divisions. To that end "U-S" places at your disposal all of its experience and its facilities for modern color reproduction.

Labels



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For Canned Foods, Beverages, Tobacco Products, Cosmetics, Candy, Cereals, Drugs, Paints . . . 146 lines of business rely on "U-S" for LABELS.

Originators and producers of designs with consumer appeal, "U-S" meets the needs for uniform quality, dependable deliveries, long-run economy.

★★*Samples of the "U-S" Line of TRU-TONE Food Pictorials (Direct Color) sent on request.*

Folding Cartons



For the manufacturer whose product and whose consumers oblige him to demand cartons of superlative quality . . . For the manufacturer who requires cartons of complicated, difficult construction . . . For the manufacturer whose orders call for special service because of varying quantity specifications for different sizes and styles . . . For the manufacturer who must have uniform quality and dependable delivery . . . For all these, "U-S" is a proven and responsible source of supply.

Display Containers



Materials by "U-S" are providing the all-important "push" for many products that might otherwise be kept on back shelves or under counters. The dealer welcomes display containers . . . provided they meet his standards. "U-S" knows those standards . . . knows how to develop and produce, for a wide variety of products, display containers that are effective "silent salesmen" as well as sturdy containers for the product.

Package Inserts and Booklets



Packages provide "a circulation which you own and control"—an unparalleled opportunity to deliver messages direct to consumers. Package inserts, booklets, and folders utilize this opportunity to . . . *Sell the uses of a product or service . . . Sell the institution . . . Build brand preference.* Long experience in designing and producing these builders of sales and good will , . . complete facilities for color reproduction . . . qualify the "U-S" organization to serve you.

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STOCK LABELS

by C. W. BROWNE*

There are two broad classifications of stock labels. One may be termed "convenience" labels, which—strictly speaking—are only adjuncts to packaging proper. These include shipping labels, address labels and stickers to indicate the character of the contents or to insure safe handling in shipment, such as "Fragile," "This Side Up," "Glass," "Poison," etc. Similar enough in character to be placed in the same classification, are the special seasonal stickers by means of which the all-year package may be given a gift or holiday personality, such as special Christmas seals or Mother's Day or Easter stickers.

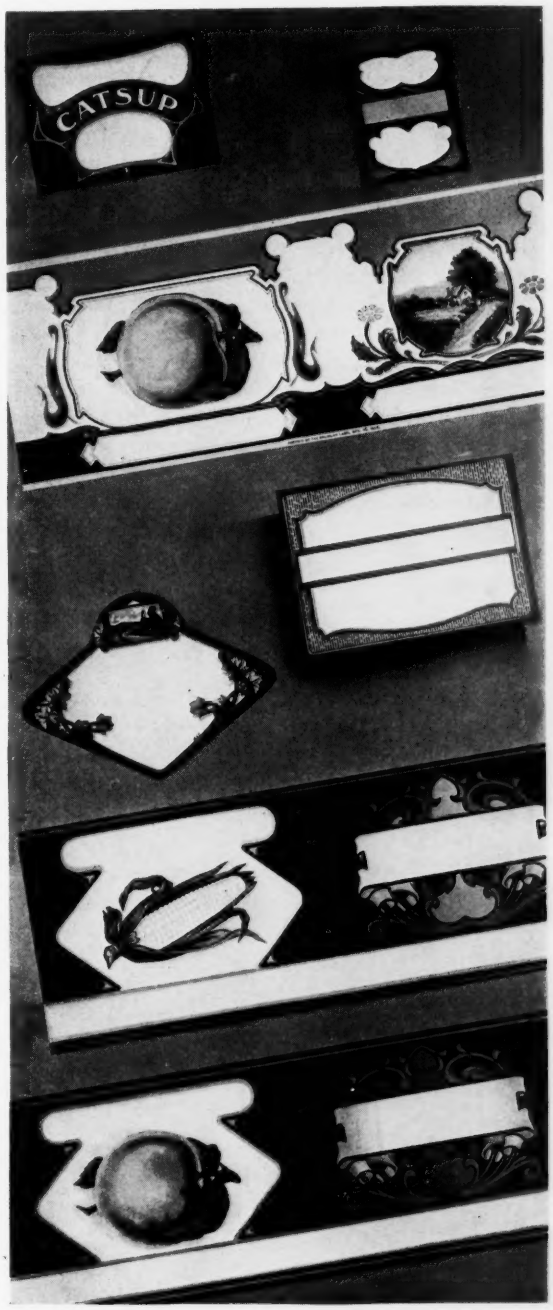
"Packaging," proper, concerns itself more particularly with the second classification, which may be termed "product labels." Fairly enough, the question may be asked: "Is the use of stock labels in line with *modern* packaging?" Judged by years in use, the answer might be "No." Judged by utility and extent of use, the answer would probably be "Yes."

Stock labels go back many years prior to the era of packaged merchandise. Rummaging among some old records recently, the writer came across a color-printed circular dated Feb. 1, 1881, bearing the signature of Russell, Morgan & Co. (now The United States Printing & Lithograph Co.), advertising "Stock Soap Box Labels" and quoting prices per 100 and per 1000, with rates for imprinting soap name and firm name. Apparently the intervening 50 or 60 years haven't brought much change either in the way stock labels are sold or in the way they are used, though, of course, the "private design" or individual package was not then used to anywhere near the extent it is today. Fifty years ago the labeled package of branded merchandise was the exception; today it is the rule. In reality, the stock label blazed the trail for modern packaging.

Today, though the stock label may not be strictly in line with modern packaging, it nevertheless fills a real need. There are three important reasons for its use:

1. The quantity may be too small to warrant a private design.
2. There may be an imperative need for a rush delivery.
3. It may be desirable to pack the goods under a different label from the regular stock.

Label producers recognize this need and many of them are prepared to supply the demand. Some of them go in heavily for stock labels, but it must be admitted that others are rather luke-warm. This is not, however, a churlish attitude of disservice. Rather, the label printer or lithographer who takes that attitude is, in reality,



1. A group of stock jar and can labels. These lithographed designs are intended for imprinting by the individual packer and, if carefully and tastefully finished, provide admirable effects. Courtesy The United States Printing & Lithograph Co.

* Manager of Marketing Service, The United States Printing & Lithograph Co.

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helping to convince his customers of the importance of character and individuality in packaging, thus genuinely furthering their interests—perhaps in spite of themselves. For beyond question, individuality and character in packaging spell benefits alike for the producer and the consumer and anything that speeds the producer toward that goal is justified. Thus there may be a sound economic basis for the stock label's mediocre character.

This does not mean that good designs are unobtainable. There are plenty of them and they are available for products of many kinds. But, as a general rule, the private design outranks the stock design in attractiveness and sales power. The catalogs of houses prepared to supply stock labels list a wide variety of sizes, colors and designs—often very beautiful—available for classes of products such as soft drinks, beer and ale, wines and liquors, cosmetics, perfumes, barber and beauty supplies, canned foods (fruits, vegetables, sea foods, meats, animal foods), as well as case labels for fresh fruits and vegetables and bottle labels for pickles and spices.

Stock labels are a god-send to the small producer, because they are sold in lots as small as 1000. Frequently the entire transaction is conducted by mail. Samples or catalogs and price lists are sent on request, the customer makes his choice, prepares his copy for imprinting and sends in his order. Deliveries can be made promptly.

Prices depend, of course, on size of labels, number of colors used, die-cuts, embossing, etc. Compared with private designs produced in large quantities, the prices are relatively higher, but it must be remembered that stock labels are sold in small lots as a rule. If the purchaser had to pay all costs of art work and plates on the small quantity he uses, the prices would be prohibitive and he would doubtless be denied the use of a colorful label. By means of the stock label, he may obtain a good looking package for a small investment. And the label houses—very properly—overlook no opportunity to remind their customers that "we also make private brand labels of every description."

Obviously, the user of the stock label cannot be assured of individuality in design, though houses specializing in stock labels have been known to parcel out their designs on what almost amounts to a territorial franchise basis. This, however, is rare and rather impractical. Ordinarily, the only insurance of individuality is the wide divergence of taste on the part of the buyers.

Under the three circumstances mentioned above, the use of stock labels is warranted by necessity and the service of supply is geared appropriately to those circumstances. Except under such conditions, however, the packager is advised to use his own individual designs, not merely in the interest of better packages but—more important—for his own profit and the long-run benefit to his consumer customers.



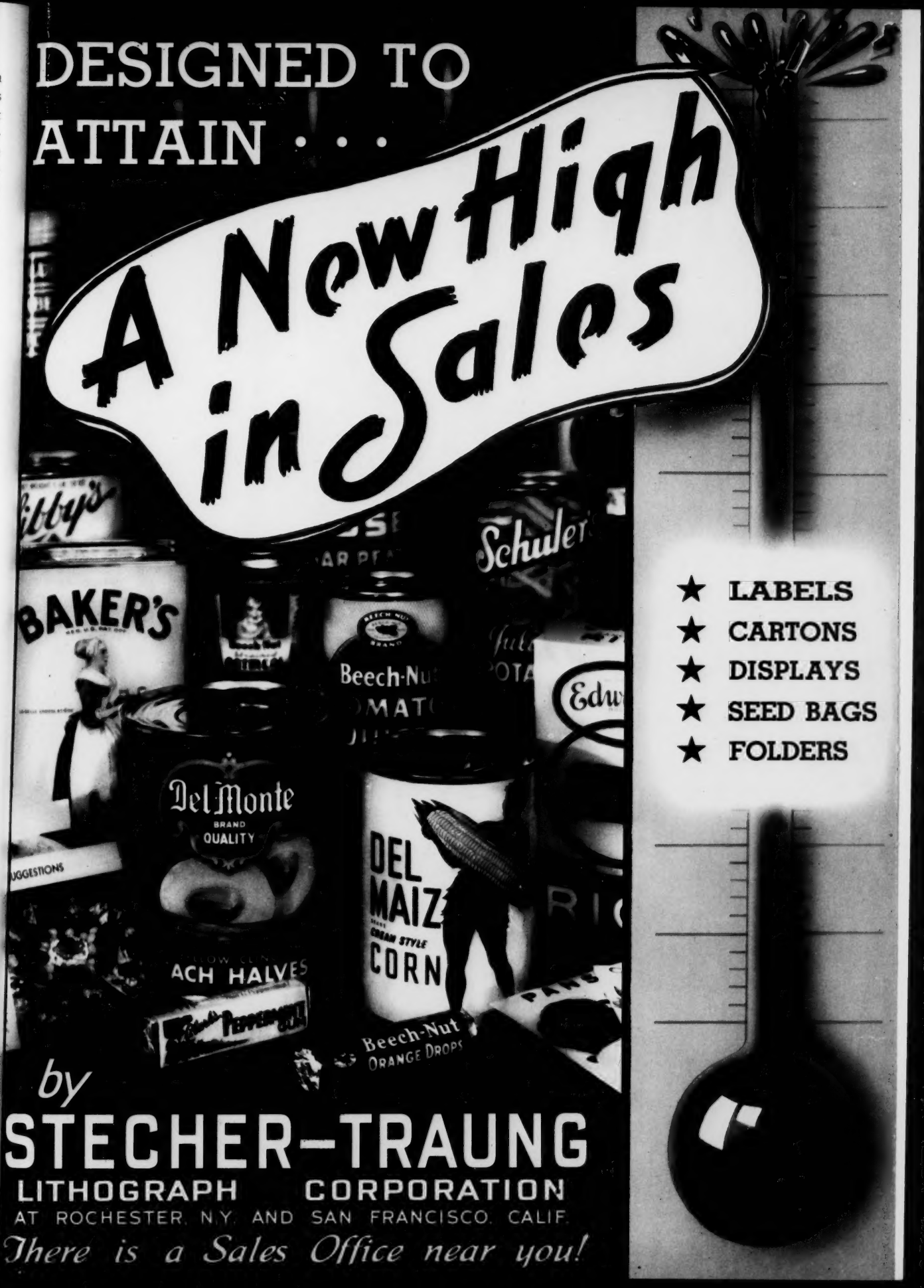
2. Wine and liquor labels. Courtesy Gamse Lithographing Co , Inc



3. Lithographed stock labels for liquors and other bottled goods. Courtesy Lehmann Printing and Lithographing Co.

DESIGNED TO ATTAIN . . .

A New High in Sales



★ LABELS
★ CARTONS
★ DISPLAYS
★ SEED BAGS
★ FOLDERS

by

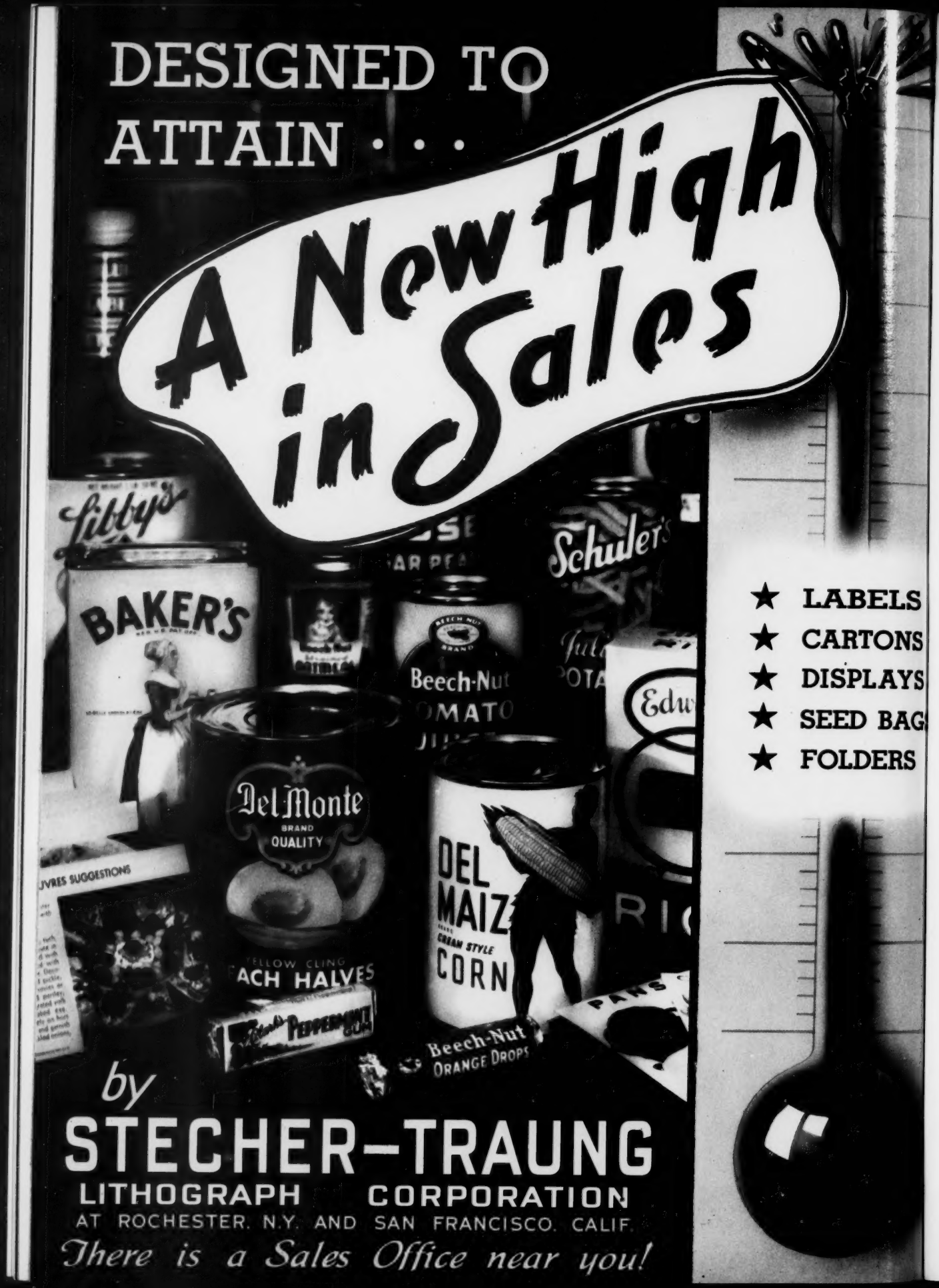
STECHER–TRAUNG

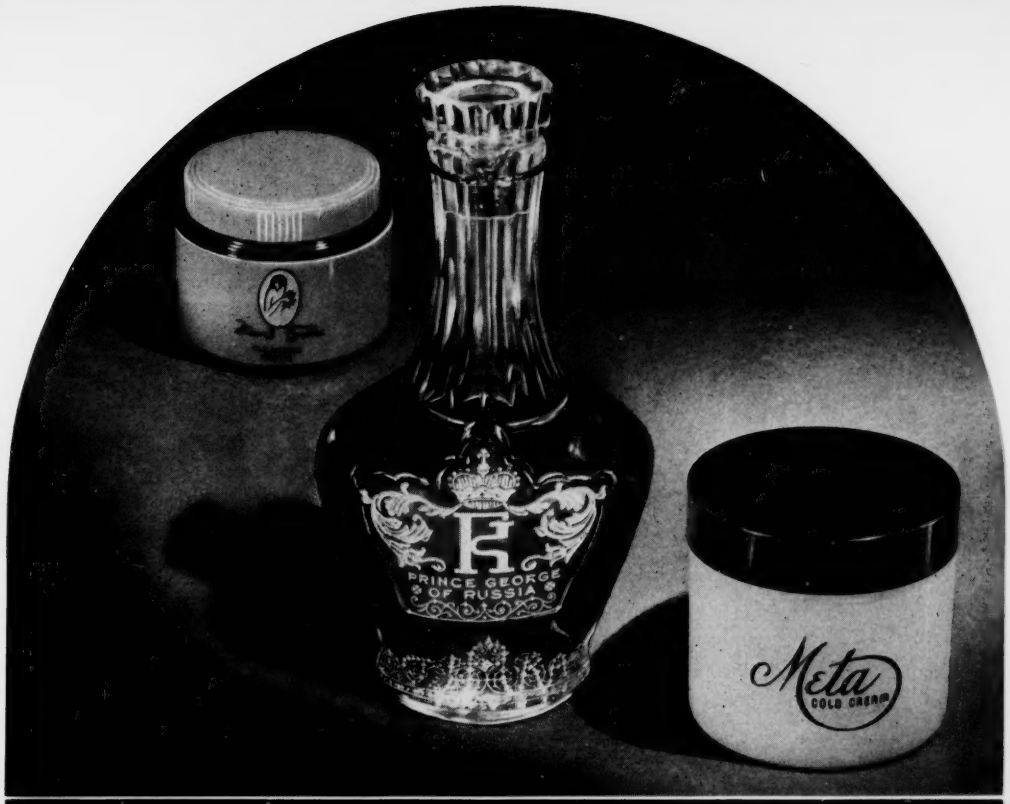
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ORANGE DROPS
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ENGRADEL

TRADE MARK

U. S. PATENT NO. 1803836

TRANSPARENT DECALCOMANIA LABEL LEADS THE WAY TO BETTER PACKAGES

We are the originators of transparent film decalcomania labels which have found a permanent market among that wide range of quality manufacturers in every field who desire a distinctive form of trade mark identification which will not mask the beauty nor destroy the transparency of their packages.

They can be applied in your own premises as and when desired and UNDER YOUR OWN SUPERVISION. Most important, they can be applied to round, flat, octagonal and irregular shaped containers, and application costs are surprisingly low. They are available in all colors, single and multiple.

PALM, FECHTELER & CO.

220 West 42nd Street, New York, N. Y. — 21 East Van Buren Street, Chicago, Ill.

BOSTON CLEVELAND BUFFALO

MERCHANDISING TAGS

Tags provide a simple and efficient form of marking and identification, particularly for products where the use of adhesives and labels is undesirable. In the last few years, such tags have increased in importance with the growing trend towards the supplying of detailed quality information to the consumer. New regulatory rulings will probably accentuate this trend in the future.

While perhaps the greatest extension of the use of tags has been in the textile and garment fields, they are also widely used on sporting goods, electrical equipment, furniture, luggage, building supplies and on many drug, cosmetic and even food products.

Tags frequently solve problems arising from the necessity of supplying the consumer with information relating to the product or with directions for its use. For products consisting of a number of units, tags serve as identifications after the outer package has been destroyed. Frequently tags are used on otherwise unpackaged products as the only available means of carrying necessary identifying and informative data to the consumer.

Stocks: A wide variety of tag stocks is available, such as coated tagboard in many thicknesses and colors, tagboards laminated with metal foil in gold and silver, and other such grades to meet the customer's needs. Recently special tag boards have been developed of the "safety paper type" with an allover water mark design worked into the sheet to prevent counterfeiting.

Printing: Tags may be printed in one, two, three, four, or five colors on one or two sides, from type, line-cuts, and Benday or halftone plates.

Attaching to Article: String in different grades and colors is, of course, the most common method of attaching, but many other methods are available, such as button slots (of various kinds), wires, and metal clips. Frequently, where none of these devices is suitable, it is possible to develop a new method of attaching. There are few articles that do not lend themselves readily to the use of one sort of tag or another.



Various types of tags showing different constructions, means of attachment and copy approaches. Photo courtesy Dennison Manufacturing Co.

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Types of package inserts. Rear row: Branded insert with transparent cellulose band, over-end insert, machined applied; collar label, hand applied; inner-carton insert, machine or hand wrapped; Outsert applied to bottle. Front row: Neck band insert, applied to bottle; under-label insert, and envelope insert.

PACKAGE ADVERTISING LITERATURE

by ROBERT REA BROWN*

Package advertising, as a means of building sales, contemplates the merchandising program as being divided into two phases. The first phase covers the effort to secure new buyers of a product, while the second phase is directed toward making larger consumers and regular customers of those new users or trial buyers. It is in connection with this second phase that package advertising principally applies.

One school of thought in merchandising disregards these two phases and concentrates its entire effort on the getting of new customers, in the belief that once a person has tried the product, he will continue to use it. The other school believes that customers must be held, rather than taken for granted and that they offer a fertile field for increased sales of a product. Consequently, a special effort is planned to go into effect after the sale is made. In any event, the effectiveness of any merchandising plan varies indirectly with the turnover of its regular customers and it is on this premise that package advertising bases its case. While less splashy than the single phase program which proceeds with the assumption that new users can be gotten faster than customers are lost, sponsors of package advertising are firm in the belief that it is less costly and more profitable to make a special effort with the customer after the sale is made, as a means of retaining his loyalty and increasing his consumption of the product.

The keynote of increased customer sales lies in the degree of customer satisfaction. Granting the inherent

* President, Outserts, Inc.

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merit of the product, there are three effective ways to safeguard customer satisfaction. The first of these is to make certain that the product is used correctly and as easily as is consistent with correct use.

The second way to keep customers satisfied is to supply them regularly and conveniently with suggestions and instructions for using the product in various ways. The most ideal and practical application of this means of retaining customer satisfaction is recipes in connection with food products. Probably the outstanding examples of successful use of recipes, both in connection with the package and available recipe books, are General Mills Flour and Borden's Magic Milk. They both feature their package literature in their publication advertising as a plus service to the housewife.

A third means of keeping customers satisfied is to supply them with institutional information in connection with a product. For example, a young mother, as a prospect for canned baby foods, is interested in the company behind the product, its research laboratories, its source of raw foodstuffs, their care in preparation, the appearance of the plant in which it is packed, etc. Such institutional advertising will not be referred to every time, but it will be available to new users and to those regular customers who have forgotten about the product story and are tempted to switch to another brand.

In some instances, it is not necessary to cover these contingencies by package literature with every product, particularly where they enjoy rapid turnover or where sales are made in multiple units to a single customer. In such situations, it is possible to present the literature in every other package, or every fourth package, or it may be done seasonally or at regular intervals.

Any sales promotion effort in connection with a product, whether it be a one-time proposition or carried over a considerable length of time, must be judged not on how many trial buyers it gets, but on how many it keeps. In practically every such promotional campaign, package literature has a part. Whether it be merchandising a premium plan requiring coupons and premium illustrations, running a contest in connection with the product, cross advertising other products, sampling new products via coupon, or any other plan based on customer interest, package advertising can do an effective and economical part of the selling job.

Who should bear the cost of package advertising? Until comparatively recent years, the cost was borne by the production department. This undoubtedly got its start in the early days when package literature was used as packing and commonly known as "stuffers." No thought was given to the appearance of the unit, the topography or the character of the copy contained therein. Under these circumstances, no doubt, package literature was rightly charged to the production department as a production expense.

More recently, however, package literature has taken its place in the merchandising sun, with the result that it shows the benefit of expert craftsmanship all the way from the copy room to the final product. It is no longer used for "packing" purposes and definitely does a sales promotion job. As such, it has no place in the costs of the production department and should be borne entirely by the merchandising end of the business. If package literature fails to promote sales in any one of the previously mentioned ways, it should be discarded. On the other hand, if designed to do a selling job, it should be fostered in the merchandising end of the business and paid for there.



Other types of package inserts. Left to right: Collars for milk bottles, label area folder, top area folder, under-key folder.



YOU CAN BLANKET ALL INCOME BRACKETS WITH A SINGLE LABEL DESIGN

We've proved it . . . done it . . . and can do it again

You'll see lots of our labels in the A & P on Third Avenue or Halstead Street.

You'll see them in the swank food shops of Greenwich, Evanston or Back Bay.

Because we've learned how to create labels that appeal to all types and all classes. Time and again we've struck those universal chords that exist on both sides of the railroad tracks.

Half the trick is having a design staff that learned its merchandising behind the counter instead of from a book. And the rest of it is having a plant that can reproduce—and enhance— the finest designs in labels that literally **dominate** a shelf or window.

If you've got a good product . . . priced right and aggressively marketed . . . we invite the opportunity to work with you in making its labels tell how good it really is. Call in

THE NATIONAL COLOR PRINTING COMPANY, INC.

EXECUTIVE OFFICES AND PLANT
930 EAST MONUMENT ST., BALTIMORE, MARYLAND
SALES OFFICES
BALTIMORE, NEW YORK, CHICAGO, BOSTON

Types of Package Literature Units

Co-product inserts: In this form of insert, the printed literature is inserted in with the actual product by hand or automatically by special insertion machinery. It usually is placed on top of the merchandise as a last operation before closing the package.

Due to reactions of inks, certain non-poisonous vegetable compounds should be used if the product requires it. Government regulations are strict and specific in this regard. Usually single-leaf inserts are used, due to the fact that with finer products such as flour, etc., a folded insert will bring out considerable of the product when the insert is removed. Specially oil treated papers are used with oily products such as canned sardines, shoe polish, silver polish, etc.

Inner-carton inserts: Placed along the side of the bottle or jar. They can be inserted by hand or special inserting machinery. They are removed after the bottle or jar has been taken out. Due to the fact that they usually cannot be seen unless the carton is examined after the bottle or jar has been removed, such inserts are often made inexpensively to allow for a high percentage of waste.

Over-end inserts: This form is inserted over the end of the cartoned jar, tube or bottle to make more certain of it not being overlooked when the carton is opened. This requires a longer form of insert, a narrow multiple fold and breaking the insert over the end of the container. They can be inserted either by hand or special inserting devices on the cartoning machine at a high rate of speed.

Banded inserts: A banded insert is one which is confined to an un-cartoned container by means of bands consisting of various materials. Most widely used is the rubber band. This is strictly a hand application. Other banding materials are kraft paper and transparent cellulose. This operation is usually done by hand, although special automatic machinery can be built. The transparent cellulose band is often used for protection of the under label as well.

Under-label inserts: This form is carried by means of inserting the folder under the label. It can be done by hand or by means of specially built automatic machinery. In some cases the label portion holding the insert is left unglued in order to allow removal of the folder. There is danger, however, of the folder slipping out in handling. To overcome this the folder or the label is spot glued which requires that the label be torn in order to remove the insert.

Envelope inserts: In this case a separate envelope is labeled to the back of the container by hand or labeling machinery and the folded insert is placed in the envelope by hand.

Main drawbacks of this form are the bulkiness of the combined envelope and insert and the inaccuracy of spot labeling at high production speed. Its commendable point is to be found in the envelope serving as a container for re-insertion after the insert is read by the consumer.

Collar band: This usually takes the form of a single sheet with a die-cut hole. However, Neher-Whitehead & Company of St. Louis have developed a patented form-fitting collar which has been used extensively in the dairy field. These reach the dairy sealed together ready to go on the bottles.

Special banded label: This form consists merely of a printed strip of paper or other material which is wrapped around the container or product. A special form called Ad-Seal-It can be applied automatically in bread wrapping machines. It gives an over-lap sealed band around the wrap which carries the consumer advertising message.

Extra wrap: This form consists of a secondary wrap around the container which serves primarily to carry package advertising. The best example is to be found in the extra wrap on the Crisco can where the inside surface of the wrap is devoted to recipes.

Tag form: With this method a string is used through the eyelet of a card, folder or booklet to tie it to the merchandise. This is most commonly done with such utensils as kitchen ware which do not offer opportunity for other means of package advertising. It is usually a hand operation.

The **Outsert** form is an interiorly sealed folder which is attached to the outside of a bottle, jar or carton by standard labeling methods and equipment. It remains confined in shipment and on the dealer's shelf; yet is readily opened by the consumer. No carton is necessary to carry the literature nor is a band needed to confine it to the container. They remain labeled to the container until such time as the customer has time and is disposed to read them. When opened and removed, a direction label remains permanently on the container. The Outsert views every package as having two sides: the sales side which includes the package design, label, cap and general appearance, and the re-sale which utilizes customers' circulation for package advertising purposes.

For purposes of package advertising, the surface of the container is often utilized to do the entire package advertising job. Particularly is this true of tin containers such as the type used for fruits and vegetables and for insecticides. These containers provide a large printing area.

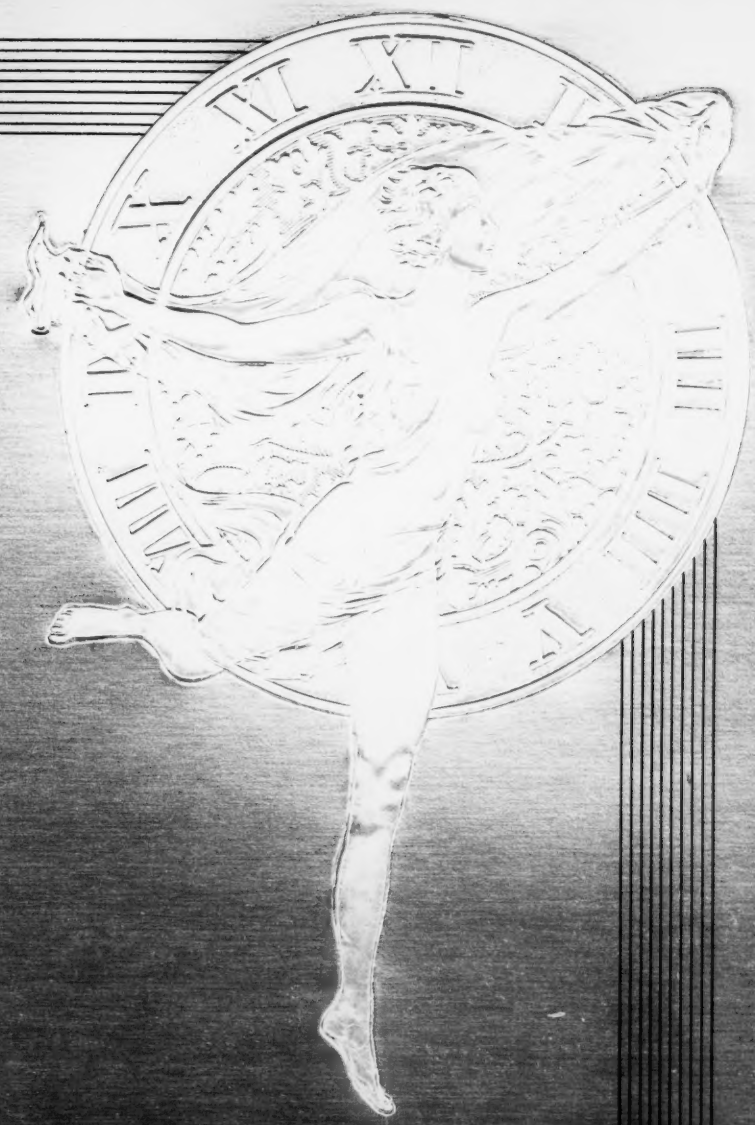
In many other instances, package advertising is limited to one of four container surfaces. The trend, in recent years, has been away from the use of the front label for package advertising functions since this portion of the package is most important from a display viewpoint. Back labels are usually utilized for descriptions of the product to facilitate consumer identification, for listing of other alternative products and for cross reference to associated items of the same manufacturer.

The cap area of bottles and jars has recently been used for cross advertising purposes and as a means of suggesting ways in which the product may be used. This is particularly true where such caps are lithographed in color.

Certain cosmetic and pharmaceutical items have utilized the bottom areas of jars for cross advertising. Particularly with sifter top containers, where the bottom must be exposed to view when the container is in use, this method of package advertising has proved effective.

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FIRST IMPRESSIONS ARE ALL IMPORTANT

Your product deserves packaging and labeling that will reflect its quality at a glance. Your insurance of creating this desired impression is our 69 years of experience in producing the unusual and outstanding. Your inquiry entails no obligation.

The TABLET & TICKET CO.
1021 WEST ADAMS STREET
CHICAGO, ILLINOIS

NEW YORK SAN FRANCISCO

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SECTION EIGHT

PLASTICS

Pages 287 to 312

CAST PLASTIC MATERIALS

THERMOSETTING PLASTIC MATERIALS

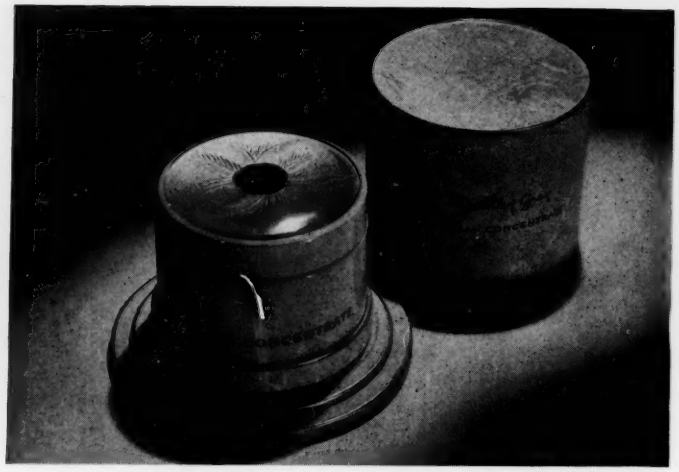
PLASTIC MOLDING METHODS

CONTAINERS FROM STOCK MOLDS

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1. Cast resin used to support luminous display letters. Photo courtesy Catalin Corp.



2. Methyl methacrylate resin forms the transparent top of this cosmetic jar closure. Molded of Lucite. Photo courtesy E. I. du Pont de Nemours & Co., Inc.

PLASTICS

Plastic materials have been used in packaging for approximately fifteen years. The introduction of new materials, however, and the more intensive application of old materials has so broadened the number of possible applications within the last two or three years as to completely transform the position which these synthetic packaging materials occupy.

They have come to be of major importance in the closure field. They are responsible for the sensational developments in the field of rigid transparent packages which have occurred in the past two years. Both of these types of application of plastics are discussed in greater detail in another section of this volume.

Plastics have also come to occupy a place of increasing importance in the box and paper fields where their decorative qualities, their sturdiness, their relative ease of fabrication, their durability, their color and their adaptability for re-use in the office and in the home have peculiarly fitted them as a material of packaging for products of a more expensive sort, for displays, for cases, for scientific, technical and mechanical instruments and, in general, wherever beauty combined with durability and strength are sufficiently important considerations to outbalance relative expensiveness.

By this it should not be construed that the plastic materials as a group represent a sort of "gold coast" region in packaging. While not to be classed as the cheapest of packaging materials, plastics are sufficiently inexpensive today to permit their use as mass production packages and displays in very many fields. The increasing facility by which they are manufactured and the increasing skill of designers and plastic producers in their plan and fabrication has likewise served to expand the field of possible applications for the materials.

To the layman, the names of the various plastic materials—of which there are many—and the processes by which they are fabricated are, in themselves, sufficient to cause a high degree of confusion. For the purposes of this discussion, plastics may be divided into four groups.

1. Transparent sheeting materials used in their thinner forms as wraps and for lamination over plain or printed papers and in their heavier forms for the production of rigid transparent containers. These types are discussed elsewhere in the PACKAGING CATALOG.
2. Cast plastic materials widely used as package trim, perhaps less widely used as major package parts or actual packages and also utilized with increasing frequency in the fabrication of displays.
3. Thermoplastics—the original synthetic plastic materials which were partially displaced by newer materials but are coming into increasing use with the development of new molding methods.
4. Thermosetting plastics—materials which may be molded by various methods to assume a permanent shape and which are, therefore, ideally suited to use both as closures and as boxes, jars, package parts and as displays or portions of displays.

Cast Plastic Materials

The cast plastic resins are materials which are supplied by the manufacturer to fabricators pre-cast into definite shapes. They are available in sheets, rods, tubes and in a wide range of standard shapes. Their fabrication is by machining and assembling rather than by molding. They have an advantage in package fabrication where a limited number of units is required because mold costs



3. A transparent card box molded of Lucite. Photo courtesy E. I. du Pont de Nemours & Co., Inc.



4. Special phenolic molding compounds have been developed for facial tab compacts. Photo courtesy General Plastics, Inc.

are entirely eliminated. They afford colors practically without limit and all degress of transparency or opacity are available in these cast materials.

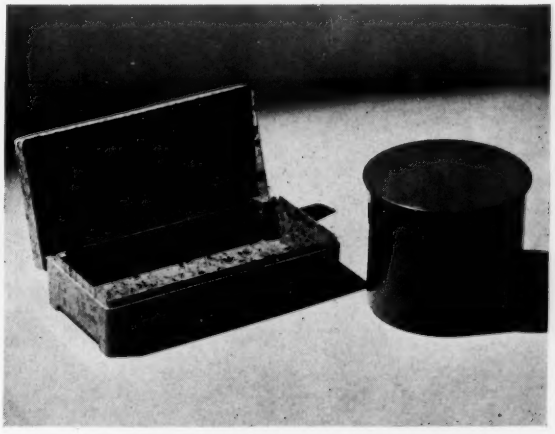
They are formed in inexpensive lead molds, the principal cost being for a mandril which must be shaped from steel to the exact dimensions and shape of the interior of the mold. Mandrils so formed are dipped in hot lead which adheres to the metal and may be driven or "shocked" off when cold. This operation takes but a few minutes and as many molds may be made from each mandril as required. Once made, the molds are filled with the liquid resin and placed in ovens where the temperature is carefully and automatically controlled over a period of days while the material cures, or polymerizes to its hardened state. The cast shape reproduces the exact finish of the mold and little finishing other than smoothing the "pouring" edge is needed. Polishing is seldom required.

A number of stock cast resins are available in the shape of boxes, box bases, tops, etc. Many manufacturers of cardboard boxes have found it practical to use small bars and knobs cut from rods of cast resin as decorative handles. The wide range of colors of the cast materials give a brilliant contrast with paper, fabric and leather box coverings. They have also been used as knobs and handles in conjunction with transparent boxes and displays made of rigid transparent sheet materials.

In the display field, they find application as display decorations and, when cut by jigsaw, as letters in signs and for similar purposes. They are also used to form the bases and supports for luminous display letters. The limit of their application is only that of the woodworking tools by which they are fabricated.



5. Phenolic plastic sales and re-use package for stationery. Photo courtesy Bakelite Corp.

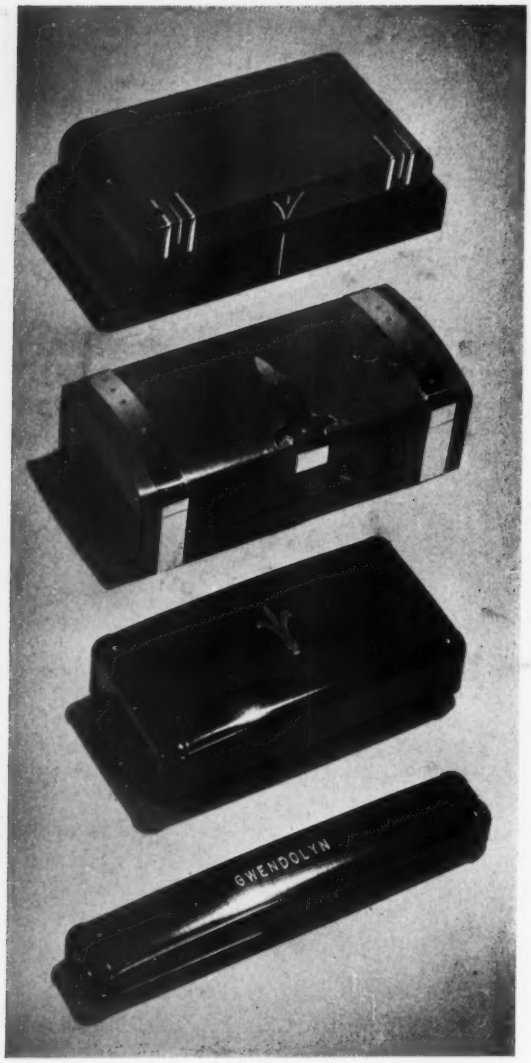


6. Rectangula and oval cigarette boxes molded of Indur. Photo courtesy Reilly Tar & Chemical Corp.

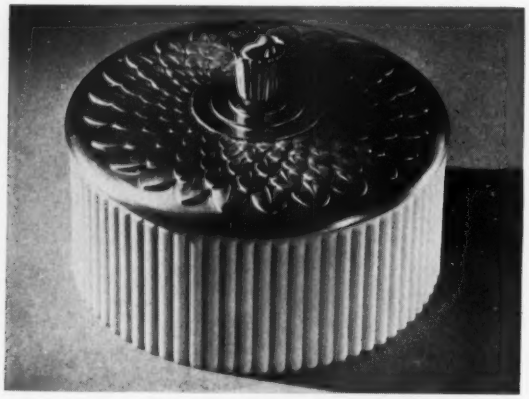
Thermoplastic Materials

Cellulose acetate thermoplastic materials, like the cast plastics, are available in sheet, rod and tube form.

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7. New methods have been developed for the application of metal decorations to molded plastics. Photo courtesy Plastic Inlays, Inc.



8. A urea base combined with a metal top forms this candy box. Photo courtesy of the Beetle Products Division of American Cyanamid Corp.

However, their principal application in packaging is as molding materials where they are supplied to the molder in pound form and are usually molded on the newer types of injection molding processes. Their colors range from sparkling clear crystals to dense opaque and include numerous mottled effects and imitations of natural pearls, onyx, tortise shell, amber and woods.

The surface of the molded articles takes a high lustre which adds to the beauty and color of the material. Thermoplastic materials can be used only on those applications where they will not be subjected to heat since they soften and lose their shape when heated beyond a given point. Their major application in packaging—in terms of volume or poundage—is as a sheet material in the transparent container field. However, numerous applications do exist in which these materials have been injection or compression molded as boxes and cases, frequently in conjunction with metals.

Newer thermoplastic materials such as Polystyrene and methyl methacrylate have recently come into use for a number of special applications. The former has been used for acid resistant closures because of its inertness to chemical actions and bids fair to have wide application in this field. The latter materials have been used for some displays and display packages where their transparency has proved an important factor.

More difficult to manufacture are the transparent acrylic and methyl methacrylate plastics which have reached the commercial stage in the past two years.

These materials, which have the permanent transparency of plate glass with less than half its weight, are molded by conventional plastic molding methods. They are of the thermoplastic variety and, therefore, may be molded with injection presses where the size of the part does not exceed the capacity of present presses of this type. Steel molds are necessary and the material is fairly high in price. These facts might seem to constitute a handicap but when weighed against the advantages offered by no other material there is every indication that these resins will gain in application as rapidly as they are made available to the packaging field.

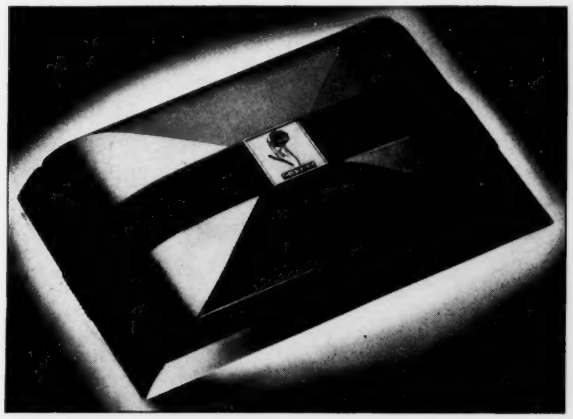
To begin with, the plastic is more resilient than glass and is not easily broken. This means that it can be used wherever glass might be used if it were not too fragile to be practical and didn't require special handling in packing and shipping to prevent its becoming broken before it ever reached the retail store. Transparent resin, molded to any shape, has every advantage of glass in display. Merchandise enclosed is just as visible as though no container were there. No special precautions are needed for packing and shipping except ordinary precautionary measures to prevent scratching. And since the material is much lighter than glass, shipping containers may be of light weight.

Perhaps the first such package to make its appearance is a watch box which has a base of molded urea or phenolic with a half-ball top of transparent resin which

THAT "MORE FOR THE MONEY" LOOK

If you'd like to give your product quality value . . . make it look like a stand-out buy for the money . . . investigate the possibilities of Durez for packaging. With Durez you gain sleek color, light weight with strength. You can create a package that's yours alone . . . distinctively styled as show case for *your* product.

You can design the package so it will be kept and used after your product is gone . . . and mold in your name and trade-mark so the container will be an advertisement of yours for years to come, a reminder in the home to specify *your* brand on reorder.



FASTEST SELLER IN THE CUTEX LINE, this bright scarlet Durez package is being featured in many a store all over the country. Cutex executives report that one of the reasons for the kit being such a popular item is that the Durez box helps to make it an unusually good value for the money.



EYE-CATCHERS THAT CATCH PENNIES—this display takes up less counter space than an ordinary book, but placed near the cash register it collects a rain of excess pennies. Here, again, Durez' unlimited design possibilities enabled a clever designer to go to town with a good idea.



60% LIGHTER THAN ORDINARY JARS, yet so strong that it can be dropped without damage, this Dermalure jar is made up in three pieces: outer shell, inner liner and cap in contrasting colors of Durez. It's just one example of the unusual packaging and display advantages that can be gained with Durez.



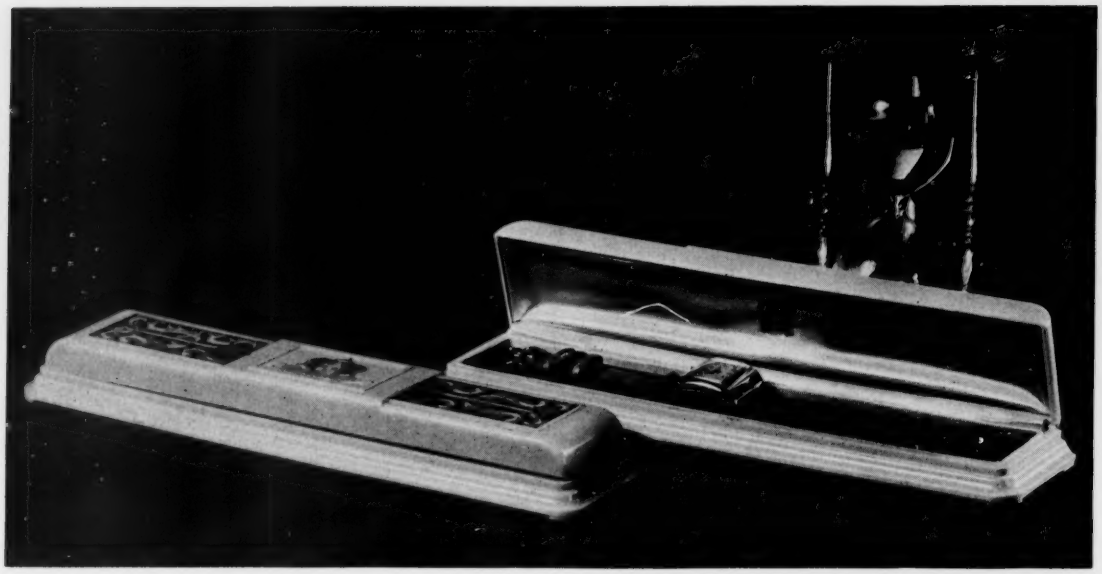
NEW CONVENIENCE BRINGS NEW SALES, a fact that was proven to Merck when they first introduced this slide-top vial in blue Durez for their saccharin tablets. Buyers liked the easy push-of-the-finger opening. It went over so well that Merck brought out a similar container that holds exactly twice as many tablets.

Durez is resistant to water, heat and chemicals. If you'd like further information on how Durez can help to merchandise and sell your product . . . if you'd like samples of packages, jars, closures and free monthly "Packaging News", write General Plastics Inc., 151 Walck Road, North Tonawanda, New York.

The Modern Packaging Material

DUREZ

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9. Watch case of urea with sepia tinted relief work producing a hand carved ivory effect. Photo courtesy of the Armstrong Cork Co.

gives the watch remarkably clear display. The cover is easily removed for examination of the merchandise, yet when closed, fits with sufficiently close tolerance to prevent dust from reaching the time-piece displayed. A smaller version of the same design serves as a ring box with outstanding allure. The sparkle, life, and fire of precious stones is not in the least dulled by the transparent covering and its rounding contour adds a gleaming surface of its own which reflects highlights in an amazingly pleasing way. Being round, reflections of distracting objects are completely avoided and as a gift package it stands supreme. These plastics, however, must not be confused with thermosetting types and are not suitable for applications which must come in contact with uncommonly high heat when in use.

Thermosetting Plastic Materials

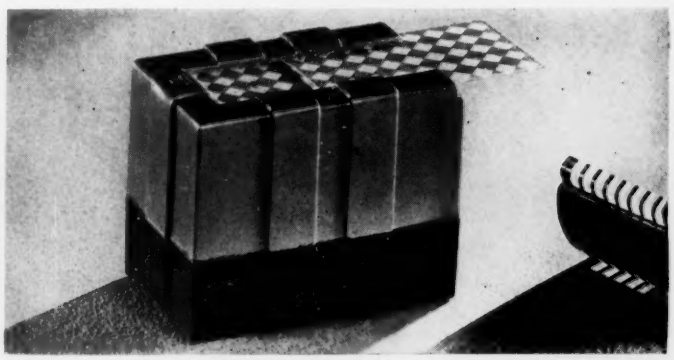
The thermosetting plastics—i.e., those which once molded change their chemical construction and assume a permanent unchangeable form—include a number of subdivision groupings. For the general purpose of identification, the two major groups of thermosetting plastics are phenol-formaldehyde molding compounds and urea-formaldehyde molding compounds.

Phenolic plastics are the oldest thermosetting plastics. Ten years ago the use of phenolics in the packaging field would have been talked of as poundage. Today, while similar figures might be employed, they would denote tonnage. In their early days in packaging there were a few molded caps and boxes, but it has only been in the last few years that plastics have really come to the front. Now they are near the top of the list of packaging materials. There are many reasons why this rapid advancement has taken place.

When these phenolic plastics first made their appearance they found quick acceptance by the buying public. Most people like plastic articles—a great enough incentive to cause any merchandiser to investigate their use. When they did, they found in this phenolic plastic a material that had exceptional designability—that could be



10. Hinged lid manicure box of black phenolic material. Photo courtesy General Plastics, Inc.



11. Razor blade dispenser formed of two moldings of contrastingly colored phenolic material. Photo courtesy Bakelite Corp.

XUM

XUM

XUM



XUM



12. Black phenolic plastics are combined in this cigarette box with bright brass inserts.



13. Urea and phenolic materials combine to form this dispenser container for cleansing powder.

formed into almost any shape or design—that was available in many colors. The finished articles came from the mold ready to use with a high lustre molded in, that couldn't be worn or washed off, wouldn't tarnish or rust. They were poor conductors of heat or cold and had excellent mechanical qualities such as light weight with great strength, resiliency to shock and low density. Above all, they found costs to be comparatively low. They found a few disadvantages which it is well to point out for comparative purposes. Consider closures, for instance. In the older days a standard material was used which had a slight odor, was somewhat resistant to acids and mild alkalies, had little non-bleeding and bleaching qualities, was not particularly flexible from the molder's standpoint and did not cure fast enough for low cost production runs.

Today, the buyer finds none of these disadvantages. Phenolics are available today that are completely odorless; that have great resistance to acids and mild alkalies; that are non-bleeding and non-bleaching. He finds practically any color except certain pastel shades in the thermosetting phenolics. In the opaque thermosetting group he finds richer or denser blacks brought about by improved dyestuffs. He finds far greater strength and durability. And from the cost standpoint he enjoys lower prices in the thermosetting phenolics. This is because of improvements in manufacturing, molding machinery and more flexible materials. Molding materials have recently been put on the market which may be automatically stripped from the mold while hot—a tremendous advance over former materials. Also, a material has been formulated which has cut down cure time in the press from around eighty seconds to thirty seconds. It's quite easy to realize what these two improvements alone have meant from the cost angle on comparatively large production runs.

There are several factors which the packaging buyer should give heed to when considering a phenolic plastic container or closure. Plastics are generally impractical for very small runs unless the item packaged is in the higher priced group where finery in dress can be well afforded. There are, of course, hundreds of stock molds available through the many custom molders. These can often be employed to great advantage—even for comparatively small runs. Generally, however, a private mold is highly desirable to permit individual design and when considering this mold there are a few principles which may be followed to advantage. The first step would really be to call in a custom molder or a service engineer from one of the materials manufacturers who will go over these and other points carefully. Design, naturally, is of the greatest importance. Designing for plastics, that is from the standpoint of making finished blueprints, is not at all like designing for metal stampings or castings, for example. Actually, the best advice is to disregard what you may know of metal stampings and castings because the characteristics of plastics are entirely different.

If an article requires strength throughout, there are several methods of securing it. Domed or hemispherical shapes are stronger than flat topped ones. Fillets at corners or filleted ribs are advisable. Extra thickness of material at points of stress may be obtained by beading or reinforcing ribs. Attachment or assembly inserts should be at filleted corners if at all feasible. This helps to keep "flow marks" from the molding operation where they show least. Shapes that call for loose sections in a mold to obtain undercuts should be avoided if possible for economical molding. Small side holes can often be drilled and large ones continued to the top to draw straight. Ribbing can be used to hide "flow marks" under the hole. Threads can be molded into round parts and, by means of loose mold sections, into other shapes. In so doing, the wall thickness should be figured from the inside of the thread instead of overall. Very sharp edges may be obtained but are generally inadvisable from the handling standpoint and it is best to "break corners" slightly. Stippled effects and sharp-edged lettering



IF A MILLION PARTS LOOK SMALL TO YOU OR A HUNDRED PARTS LOOK BIG . . . .

Boonton regards an order for a daily 500,000 moldings kindly—but in no way as exceptional.

Correspondingly, many an order for "500 only" drops onto our desks each morning. And we love 'em. Give them the same fond and careful attention that we lavish on our biggest orders.

Only a medium-sized plant—like Boonton—completely integrated (in the way Boonton is) can handle, engineer, and supervise at both these extremes.

You might take this as a hint that we have everything you need—brains, ability, equipment, experience. We have.

And we'd be glad to refer you to any number of firms—people to whom a million parts look small, or to whom a hundred parts look big—to prove it.

Write us . . . or stop by our plant and we'll *show* you.



"A Ready Reference for Plastics." Written for the layman, this unique handbook explains the uses and characteristics of plastics in plain, non-technical language. Write for FREE copy.

BOONTON MOLDING COMPANY

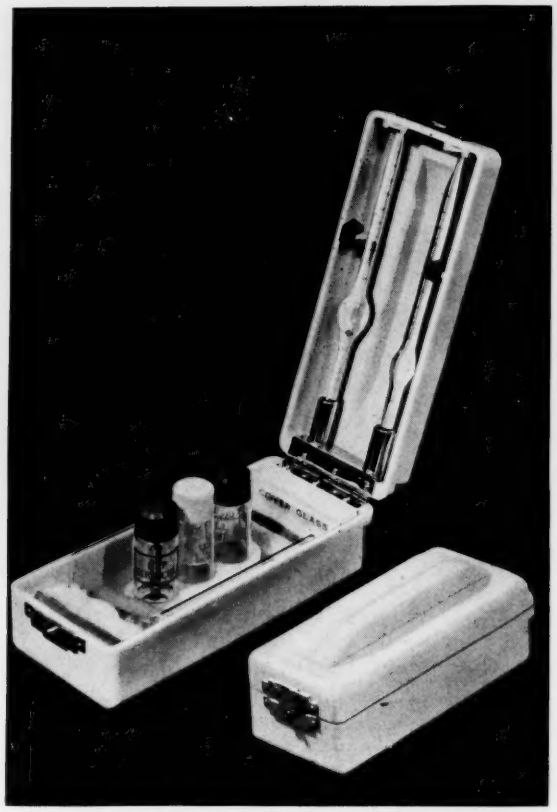
MOLDERS OF PLASTICS · PHENOLICS · UREAS · THERMO-PLASTICS

BOONTON · NEW JERSEY · Tel. Boonton 8-0991

N. Y. Office—Chanin Bldg., 122 East 42nd Street, Murray Hill 6-8540



14. Shaving accessories are here presented in an attractively molded re-use container. Bakelite phenolics are used. Photo courtesy of the Gorham Co.



15. A hematological set for physician's use is carried in this urea kit with metal hinge and snap lock. Molded of Plaskon by the General Electric Co.

sometimes cause sticking in the molding operation. Fine, straight draw ribbing and round edge lettering will definitely assist in eliminating this possibility. Incised lettering and design in plastics mean higher die cost than raised lettering. When incised lettering is most desirable it is best to employ a narrow style if such lettering is to be wiped in. Double or triple line lettering is better for wider letters because there is less likelihood of the pigment being wiped or worn off. "Low" bas-relief designs and letters catch highlights as well as do high relief decoration, yet are more easily kept clean.

Generally speaking, anything that can be engraved in steel can be molded on the surface of a plastic piece. Relief and intaglio sculpturing, inlays of metal or other contrasting materials, decals, labels, branding, are the most commonly followed methods of marking plastics. Incidentally, the field is still wide open for smart use of other materials as components of the plastic piece. Leather, real or imitation, wood, rope, canvas, cloisonne, printed papers, cork, laminated materials, glass, reed, fabrics, can all be combined with plastics for new and strikingly unusual effects. Actually, so little has been done along this line that it does not seem unreasonable to predict that a swing in this direction would result in materially increased sales of almost any item so packaged.

The actual manufacture of the molds or dies used in the production of plastic pieces is indeed a specialized line in itself. Therefore it appears advisable to re-emphasize the importance of having a custom molder or plastic manufacturer's service engineer right in on the ground floor when the buyer is considering a plastic package—be it a container for paper, metal, cosmetics, liquids, or what-nots. They know the problems of molding. They know materials and will be quick to verify the proper one for a specific job should there be any question at all.

Molded collapsible tube caps one-quarter inch diameter and molded radio cabinets eighteen inches high, fourteen inches wide and ten inches deep, fittingly illustrate the scope of phenolic plastic molding from the packaging standpoint. Size, therefore, hardly has to be considered, for the greatest percentage of retail packaging comes within these specifications. Looking back over the years we find the largest number of users of plastics for containers or closures in the drug and cosmetic industry. Even there the possibilities are far from exhausted. Witness one of the latest plastic containers—for cleansing pads—which has literally swept the country overnight. Incidentally, that use points out one of the outstanding characteristics of phenolic plastics. When the idea of packaging facial tissues was conceived and decided workable, they were first put out in metal containers. Because of the moisture in these saturated pads, the metal rusted and corroded. Plastics were tried and some of them swelled and cracked. It remained for the phenolic manufacturer to produce a molding compound for the base of these containers that was completely moisture-proof.

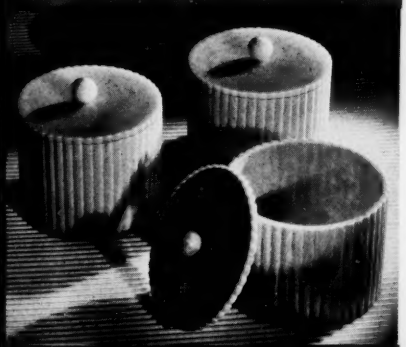
Put Sales Punch in Packaging
WITH BAKELITE MATERIALS



Opaque and transparent Phenolic Bakelite Molded closures for bottles, tubes, jars.



Boxes, cups and other containers of gem-like transparent Phenolic Bakelite Molded.



Merchandise containers of shell-like beauty made from Bakelite Cast Resinoids.



Counter display of white, gray and black Bakelite Laminated (Formica).

Closures for Bottles, Tubes and Jars

Permanently lustrous, colorful closures of Bakelite Molded step-up the salability of your packages! They furnish a non-leaking seal, always are easy to remove and replace ... and add a striking touch of beauty that increases the display value of the package.

Bakelite Molded closures are non-corrodible, highly uniform, and non-sticking. They may be readily obtained in any private design ... in all colors ... and in transparent, translucent or opaque effects.

Containers and Dual-Use Packages

Bakelite Molded containers successfully promote the sales of many kinds of merchandise ... cosmetics, stationery, belts, dental burs, automotive parts, etc. When designed for dual-use ... first, as an attractive original package, then as a utility container for cigarettes, handkerchiefs, etc.... they add a premium-appeal to the product.

Because of its strength, durability, permanent lustre and wide range of decorative effects, Bakelite Molded is ideally suited to dual-use, re-fillable or permanent containers.

Merchandise Displayers

Attractive modern displayers made of Bakelite Molded or Bakelite Laminated provide dramatic, high-quality settings for your merchandise. They retain their fresh, new appearance indefinitely ... withstand repeated shipping, handling and washing.

Over 600 Different Materials

At your service for better packaging, there are more than 600 useful Bakelite plastics ... molding materials and laminated stock. They are enduring and permanently lustrous ... and their colors run the gamut of the spectrum, in opaque, transparent or attractive mottled effects.

Bakelite Materials include *cellulose-acetates, phenolic materials, urea* and *polystyrene* plastics ... with numerous special types for unusual resistance to chemicals, heat or rough handling.

Send for Information

Whether your product is packaged in tubes, bottles, jars, or boxes, you can benefit by learning about these modern packaging materials. When applying plastics to your package designing, call on Bakelite Plastics Headquarters *first* for advice and assistance. Write for illustrated booklet T, "A Guide to Modern Packaging with Bakelite Materials."

BAKELITE CORPORATION, 247 Park Ave., New York
BAKELITE CORPORATION OF CANADA, LTD., 163 Dufferin St., Toronto
West Coast: Electrical Specialty Co., Inc., San Francisco, Los Angeles, Seattle

BAKELITE

The registered trade marks shown above distinguish materials manufactured by Bakelite Corporation. Under the capital "B" a trade mark, a numerical sign for infinity, or unlimited quantity, it symbolizes the infinite number of present and future uses of Bakelite Corporation's products.



Delicate white and color ed closures of Bakelite Cast Materials.



Clear and colored chemical-bottle closures of transparent Bakelite Polystyrene materials.



Lustrous black and colored packages made from Phenolic Bakelite Molded.



Rotating merchandise-displayer with housing of lustrous black Bakelite Molded.

PLASTICS HEADQUARTERS

XUM

In the field of men's wear are some excellent examples of longtime users of plastic packages. Two outstanding proponents are Hickok and Pioneer, who have been styling their containers in plastics for years. Many of these are dual-use packages serving well as cigarette boxes, ashtrays, etc.; after the original contents have been removed. Sales have consistently been increased.

Jewelers and watchmakers have found plastics finely adaptable to their requirements. The high sheen, the satin finish, the beautiful contrasts between smart white linings and rich black cases, the exceptionally light weight of plastics, all contributed to their success.

Office supplies, personal pen and pencil sets and stationery long ago adopted plastics. Not only are many of their containers molded but one finds many molded articles also. Parker, Sengbusch, Sheaffer and others have found plastics ideally suitable for pens, pencils, boxes, inkstands, etc.

Premiums, one of the big volume production group, have been slow to realize on the adaptability of plastics. Toys and games have only scratched the surface of plastic possibilities. Sporting goods manufacturers are just becoming aware of the many applications of plastics to their merchandising problems and a hint from the men's wear manufacturers may be well taken.

Urea plastics are of the molding type and are available in lighter shades of color than most of the phenolic group. This is because urea syrup, before the condensation process which reduces it to powder has taken place, is a water-clear liquid. It, therefore, gives full value to pigmentation and even pastel shades may be definitely controlled. Even white and ivory are common in ureas. To the manufacturer whose package depends upon daintiness of color for its selling appeal, urea may be the ideal molding compound, provided, of course, that its chemical properties are suitable to the job. Although higher in price than the phenolic compounds, except those lighter shades recently introduced, this advantage of color and translucency is often worth the difference in many applications. Urea moldings are insoluble and inert, resistant to greases, oils, and solvents. They have no taste or odor and there is little or no tendency to show dirt even with constant handling.

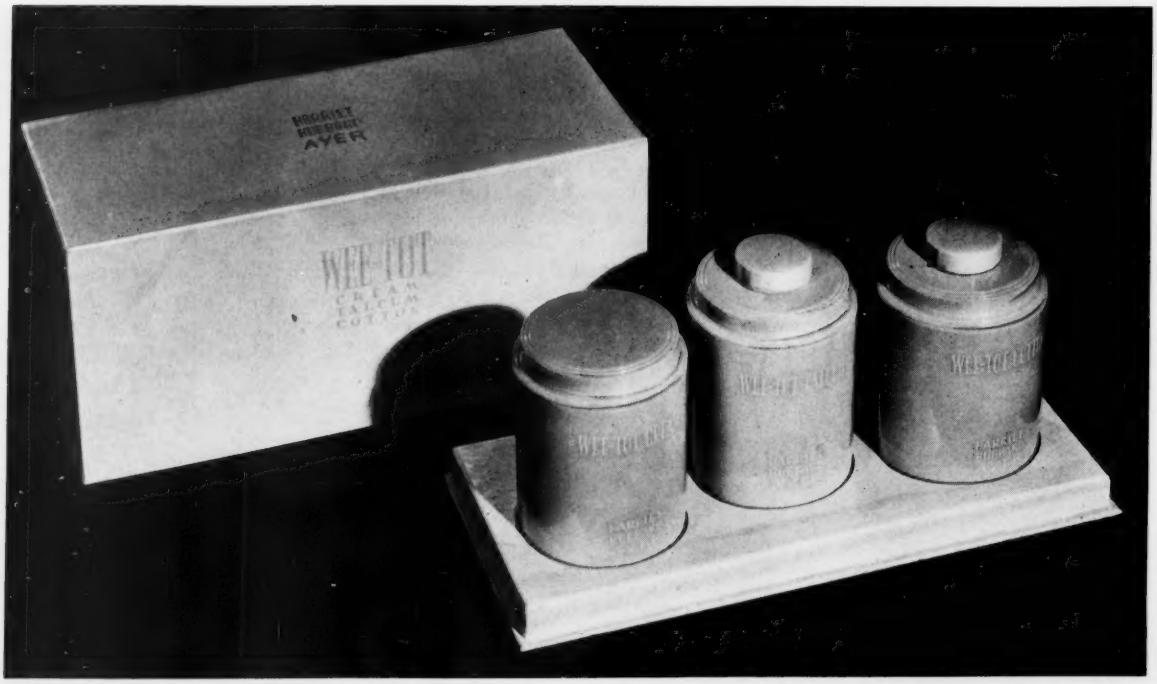
Ureas have been used widely for tube and bottle caps because their broad range of colors offers a distinctive note of attraction while goods are on display. They are frequently chosen for better harmony with labels than would be possible with dark colors. They are especially suitable, too, for intimate use in the boudoir and bath and for that reason have found general favor in packaging cosmetics and toiletries.

Ureas are often used in conjunction with plastics of the phenolic group. Their gay colors contrast pleasantly with the brilliant blacks and dark shades of the less expensive material. Urea covers of ivory or pastel shades create a harmonious ensemble with the smooth lustrous finish of black phenolic boxes and jars.

Urea moldings combine harmoniously with the newer transparent resins providing the color they, in themselves, lack. Rich colorings supply a background of warmth and appeal which accentuate the cold clarity of the transparent part.

Transparent phenolics are a new variety of thermosetting plastics and capable of resistance to heat and impervious to moisture to a greater degree than those materials we have just discussed. Their first appearance in

16. Re-fillable containers for baby toilet accessories. Molded of Plaskon by Colt's Patent Fire Arms Mfg. Co.





Profitable packaging starts here!

All good packaging success stories start at the *beginning*—with the materials that go into the finished box or display piece. And when the package is to be made wholly or in part of plastics, a good beginning is a look at Monsanto Plastics.

Here are materials that have sales-power, even in their unfabricated form. Color ...if it's in the spectrum, it's in Monsanto Plastics! Versatility... there's a Monsanto Plastic for packaging requirements in opaque or translucent materials, or in crystal-clear Vue-Pak.

Your inquiry of Monsanto Chemical Company, Plastics Division, Springfield, Massachusetts, will bring information applied directly to *your* 1939 packaging requirements. Or, Plastics Division district offices at New York, Chicago, Detroit, St. Louis, Los Angeles and Montreal, Canada, provide counsel on any plastics problem.

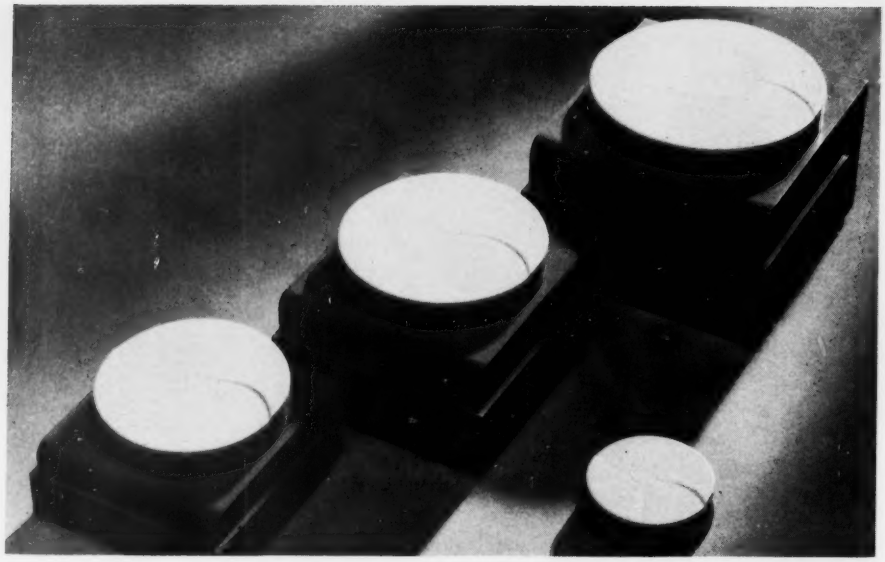
MONSANTO PLASTICS
Cellulose Acetate • Cellulose Nitrate
Cast Phenolic Resin

Sheets • Rods • Tubes
Molding Compounds • Castings
Vue-Pak Transparent Packaging Materials

MONSANTO PLASTICS

PRODUCTS OF MONSANTO CHEMICAL COMPANY

XUM



17. Jars of unusual design molded in a combination of urea and phenolic materials by Colt's Patent Fire Arms Manufacturing Co.

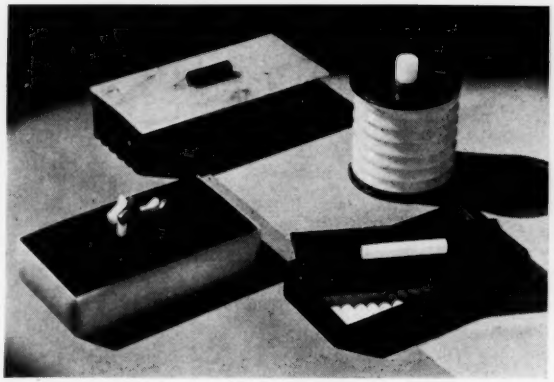
this country was for chemical laboratory use as beakers, measuring cups, and such. Their next indication of commercial use is for cups, saucers, plates, and other tableware for aircraft and trailer service where sturdy, lightweight dishes are the paramount requirement.

Transparent phenolic in its natural state is amber in color, but with the introduction of pigments, these materials may be colored with any of the deeper shades of red, blue, or green so popular in modern glass. By the admixture of various coloring compounds surprising mottled effects are easily obtained.

Plastic Molding Methods

There are two methods in general use for molding plastics. They are known as injection molding and compression molding. Injection molding is rapidly advancing as the most economical method for mass production molding. In principle it is very similar to the die casting of metals. The molding material in the form of granules is heated to a soft flowable consistency in a closed heating cylinder, and is then forced under high pressure by means of a piston through a nozzle in the cylinder into a relatively cold mold. The plastic sets up or hardens quickly in the mold, and the finished parts can be ejected within a few seconds. If the molds are well polished, the parts require little finishing other than trimming off the gates and sprues which can be ground up and re-used.

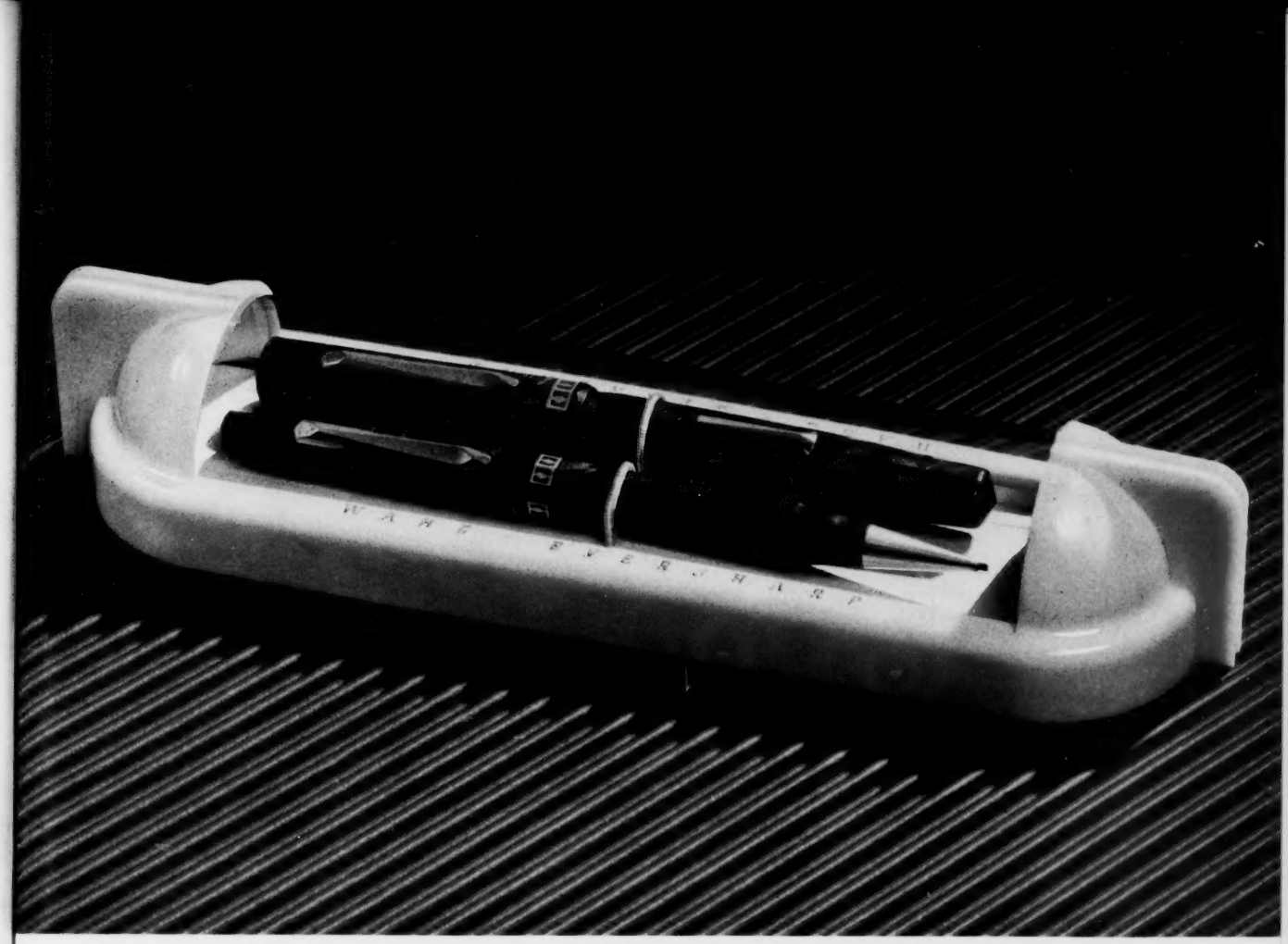
Injection molding machines are generally automatically operated for continuous production. Temperatures, pressures, and time cycles are adjustable and automatically controlled. The machines have a capacity of from two to six ounces per stroke or cycle, and operate at a speed of ten to ninety seconds per cycle depending upon the size and wall thickness of the article and the molding properties of the material. New machines with greater capacities are being built at present. Injection molds



18. Cigarette boxes of cast resin with knobs of contrastingly colored material. Photo courtesy Catalin Corp.



19. Contrastingly colored cover and base form this dual-use package for razor blades. Photo courtesy Bakelite Corp.



esigned by Kenneth W. Olson
Chicago, Ill.

A DISPLAY THAT *"Clicks"*
FOR A PENCIL THAT *Clicks*

The new Eversharp Repeating Pencil—"the pencil you can sharpen with your thumb"—and its writing companion, the Wahl-Eversharp Fountain Pen, are assured of a point of sale display that "clicks" in this new Auburn-molded plastic case.

This modern, attractively stream-lined case is bound to prove that it pays to bring your plastic molding problems to Auburn.

More than sixty years of adapting molded plastics to the creation, packaging and display of products that sell, gives Auburn an inside track when cost is weighed against value.

Economical production, speeded up service, and assured qualtity are the results of Auburn's long experience. Why not let us apply that experience to your next molding problem?

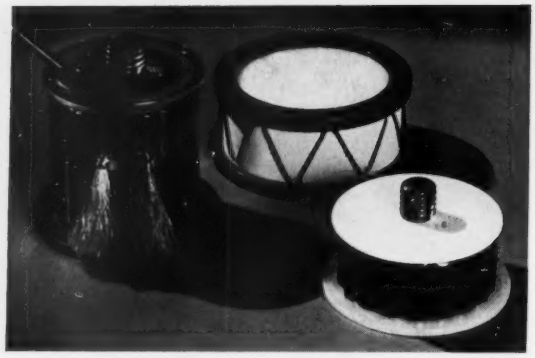
Established 1876

MOLDED PLASTICS DIVISION OF

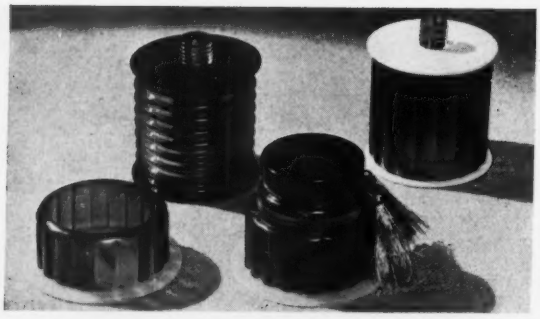
AUBURN BUTTON WORKS, Inc.

AUBURN, N. Y.—New York, Chicago, Detroit, Cleveland, Rochester, Boston

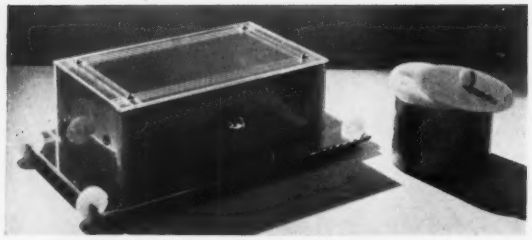
XUM



20



21



22

20-21-22. The unusual possibilities for decorative effects available through the use of opaque, translucent and transparent case resins, either separately or in combination with other materials, may be judged from the above photographs. Photos courtesy Catalin Corp.

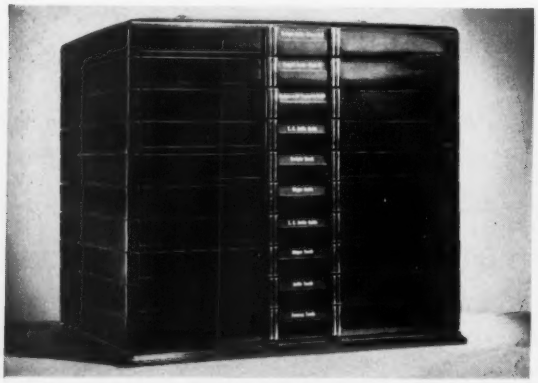
have single or multiple cavities, the number being limited by the capacity of the machine and the size of the article to be molded.

Injection molding has many advantages over the usual compression molding, the most important of which are high speed production and reduced mold costs as smaller and lighter molds with fewer cavities are used. This method is especially adapted for small boxes and closures when volume production of a uniform high quality is paramount. Because of the plastic flowing character of the material as it enters the mold, it faithfully reproduces the contours of the most complicated molds and permits the use of intricate cores, inserts and shapes which have hitherto been impossible by any of the other processes of molding.

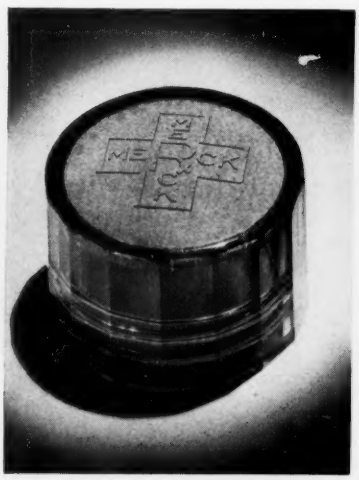
At the present time injection molding applies only to thermoplastic materials, but thermosetting materials have been molded by a similar process called transfer molding in this country for some time. Automatic injection molding equipment for thermosetting material is now in the course of development and specially developed phenolic and urea materials are also being prepared for early usage in this machine.

Containers of large size and many articles of heavy sections are often more economically molded by compression molding. Compression molding differs from injection molding in that by injection the material is heated to a flowing condition outside of the mold, and is then squirted under high pressure into a cold mold; while by compression molding, the material is heated in the lower cavity of the mold, and is flowed under pressure applied in the closing of the mold. The mold itself, as well as the material, goes through a heating and cooling cycle so the rate of production is governed by the efficiency of these cycles.

Compression molds are of two general classes: hand molds, and semi-automatic molds. Hand molds are the simplest and cheapest. They are assembled and loaded into the hydraulic press by hand, and are heated and cooled by conduction from the platens of the molding press which are steam heated and then water cooled after



23. Phenolic resins form this multiple drawer filing case for artificial teeth. The device is adjustable to any size by the addition of extra drawer units. Molded of black Bakelite by Associated Attleboro Manufacturers, Inc.



24. Molded of Bakelite Polystyrene utilizing a glass cloth liner, this transparent plastic closure replaces ground glass stoppers formerly used on acid bottles.


PLASTIC
TRANSPARENT
and
OPAQUE
CLOSURES
MOLDED
BOXES
PREMIUM
ITEMS
MACK MOLDING CO.
WAYNE
NEW JERSEY
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For Northam Warren Corporation

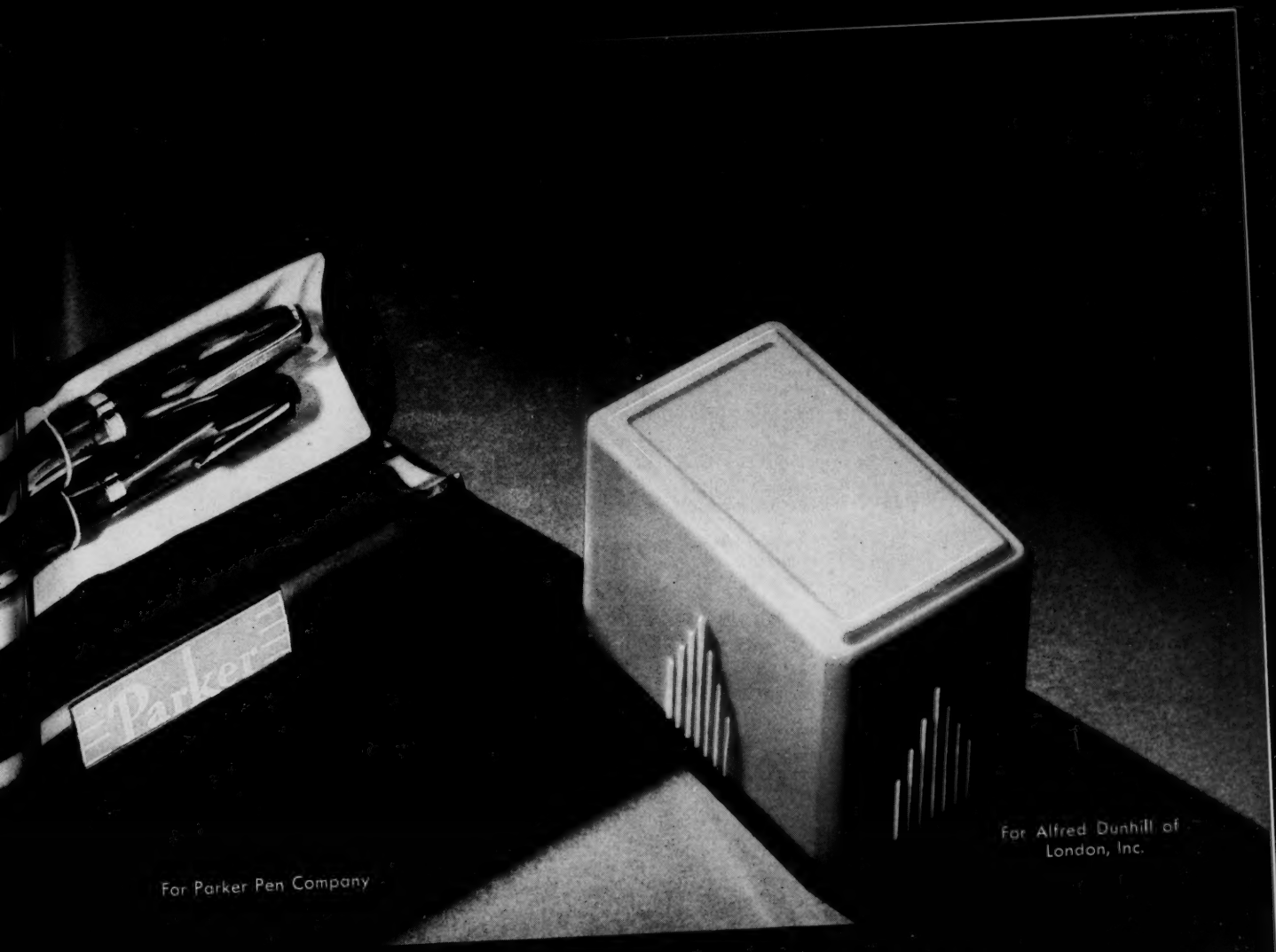
PLASTICS PACKAGING PROBLEMS



For Universal Camera Corporation

For Bourjois Inc.

XUM



For Parker Pen Company

For Alfred Dunhill of London, Inc.

. . . . *Solved* the G-E WAY

AND General Electric's way of solving plastic packaging problems is to maintain a styling and designing organization within its Plastics Department—an organization of men who, with a keen appreciation of plastics, can interpret the customers' exact requirements and give them a plastic container that is smart in design, rich in sales appeal, beautiful in color combinations, and economical to mold.

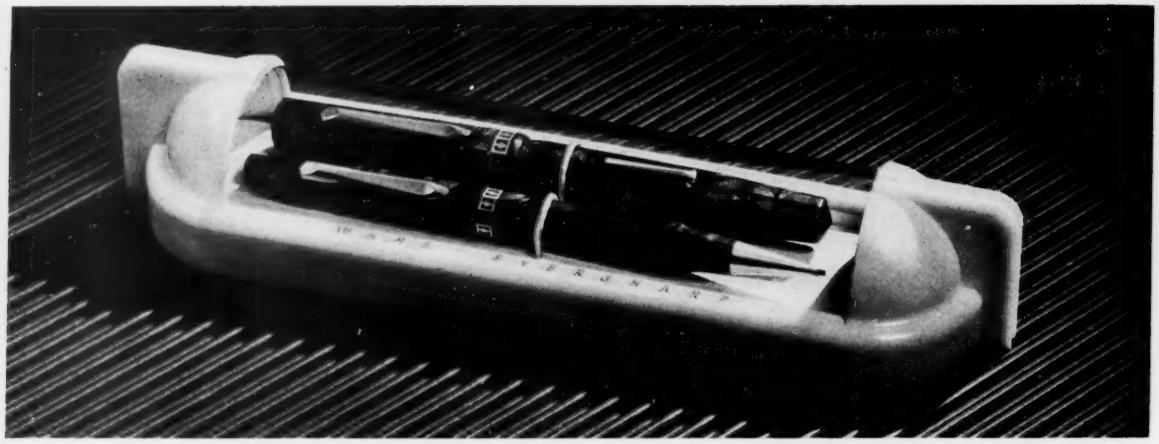
Let General Electric help you the next time you have a packaging problem. Combine its facilities and knowledge of plastic design with your merchandising and packaging requirements. We know that the results will prove profitable to you.

For help and information, write Section J-19, Plastics Department, General Electric Company, One Plastics Avenue, Pittsfield, Mass.

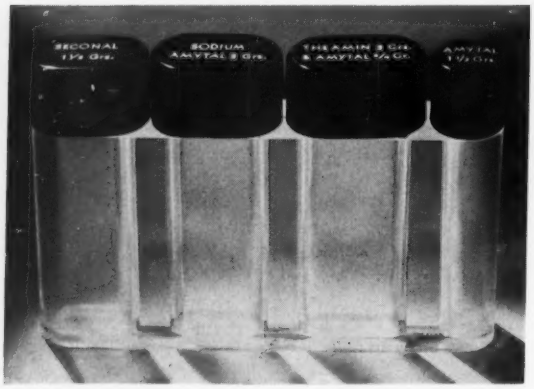
GENERAL ELECTRIC

PD-192

XUM



25. Cream colored ureas are combined with transparent plastics to form this unusual pen and pencil gift box and display. Molded by Auburn Button Works, Inc.



26. A molded Lucite block forms the base of this multiple vial set for medicinal capsules. Closures molded of phenolic resins.

the mold is closed under pressure. Semi-automatic molds are attached to the head and ram of the press and are cored or ported for steam heating and water cooling. While this type is more expensive than the hand mold, it operates on a shorter cycle, and is more economical in large scale production. Both types of molds usually have multiple cavities, the number depending upon the size of the article to be molded and the capacity of the press in which they are to be used.

The design and layout of compression and injection molds is a specialized art. Many factors are involved on whose solution the successful operation of the mold depends. Here again many pitfalls can be avoided by close cooperation between the article designer, mold designer, and package manufacturer. Frequently, minor changes in the design of the article will result in substantial savings in the construction of the mold, and in the production of the article itself.

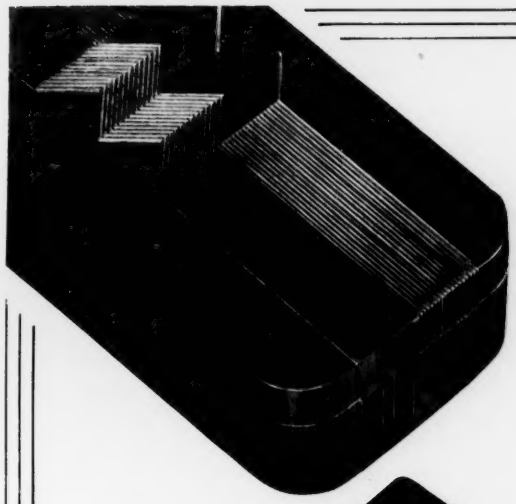
Containers from Stock Molds

There are probably many manufacturers who would like to package their products in plastic boxes if they knew such boxes could be obtained within the limits of their appropriation for containers. It has probably never occurred to some of them that many such boxes are available if they were only able to dig out the source of supply. It is to these manufacturers that this article will be of special interest.

Original mold costs have been frequent barriers to manufacturers whose requirements for a few hundred boxes of exceptional quality to package a certain item would not permit the additional investment and still leave anything like profit. Molded boxes from stock designs are the natural answer to these requirements and there are many molding establishments with a number of such molds in their archives waiting to be used.

It is keen buying judgment to take advantage of these stock designs and there is no reason to believe that because a box has at one time been used to package a product that it is not equally useful in packaging another product. Even though a stock design is chosen to avoid mold costs, there is nothing to prevent the molding from being given its own individuality and made suitable for the exact purpose in mind. It must be remembered that the molds are really the stock items. The containers to be made from these molds are not in any sense ready-made. They can be as different from the original boxes for which the molds were made as the imagination of the manufacturer will allow.

In the first place, plastics permit a wide range of colors and color combinations which are in no way limited by stock molds. If an original box and cover were produced in red or black, there are literally hundreds of color combinations that can be used to make the new boxes appear as different as though actually designed for the current user. It is also possible to make boxes of one color and covers of another. Or the cover can be made of plastics and the box itself of another material. Then, too, there are inlays, either of metal or another color of plastic material, which offer innumerable ways of changing the appearance of a box from that of its predecessor produced from the identical mold.



Let's Get Away from
DIE-MAKERS' PACKAGES

Heretofore, plastics penetrated the packaging field mainly as a substitute; and, as such, merely commanded that recognition given plagiarists. Economy has been the die-maker's goal . . . the result sharp corners — straight lines, stereotyped decoration.



Today, GORHAM has proven that when designers — not die-makers or molders — are dictators, the words "It can't be done" are debunked, that painstaking attention to detail, freedom of execution and greater eye-value are possible.

In examples of modernly executed packages illustrated, note how black, so accentuated with soft lines, reflected light and toning, captures the same inherent beauty and visual appeal achieved with expensive colors.

The Result . . . successful display packages at no premium — produced in media that people promptly recognize as artistic accomplishments in their own right.

THE GORHAM COMPANY, *Plastics Division*

PROVIDENCE, RHODE ISLAND

Chicago: 1226 MERCHANDISE MART (*Telephone* SUPERIOR 5449)

New York: 6 WEST 48TH STREET (*Telephone* BRYANT 9-4657)

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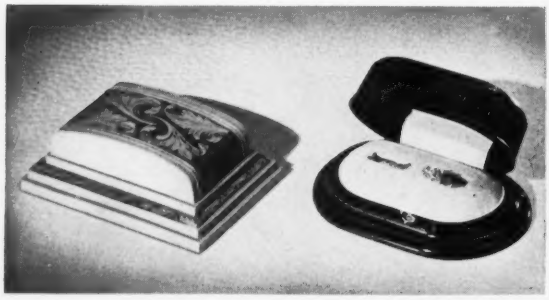
If a comparatively long run is contemplated, trade-names and trade-marks may be hobbed into the mold to be used for the cover, producing an entirely individual box with identifying name of the product or manufacturer. Inlays, especially, offer an attractive means for product identification and they may be accomplished either by inserting stamped metal inlays in the mold when molding or by hobbing the marks of identification in the original mold and then plating with metal by electro-plating methods. These recessed identification marks may also be wiped in with contrasting color if the expense of inlays would be avoided.

A method has been worked out through which it is possible to print in as many as four colors on plastic containers with little expense. An overall pattern against a plain ground will change a stock container from a drab to a gay affair and give it individuality in keeping with the product it contains. Trade-marks, advertising matter, or plain designs can be imprinted in this way.

The re-use value of plastic containers must not be overlooked nor underestimated. Their smooth lustrous surface and the permanent nature of their construction preclude any chance of their being discarded as soon as the product which came in them is removed. Women, and men too, find many permanent uses for an attractive box and almost all of these plastic boxes, available from stock molds, have been carefully designed with this thought in mind. It is one of the greatest recommendations for the use of plastics in container construction. This one advantage is frequently responsible for the choice of the item at the point of sale. There are amazingly few instances where the extra cost of a plastic box has not justified the additional expense when total volume of sales has been tabulated.

Some molders have spent considerable time and money in perfecting cream jars, powder boxes, rouge boxes, lipstick containers, and allied items for the cosmetic trade. Others have developed clever moldings that serve in the re-use capacity of cigarette boxes or ash trays, and the like, cleverly designed and thoroughly useful both for packaging appropriate items of merchandise and in after use. Then there are other molded items which were originally planned for the retail trade and which, through their familiar appearance in retail stores at a rather substantial price, add obvious value to the merchandise they contain when they appear as a package.

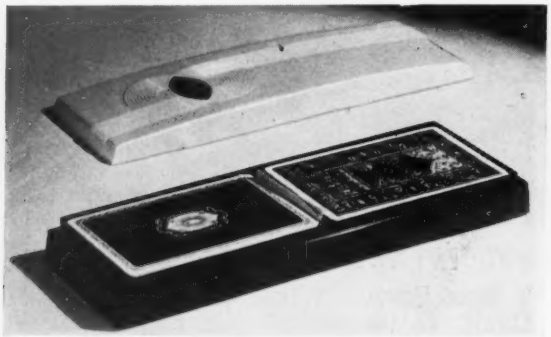
Another advantage to the manufacturer who is in a position to choose a design from a stock mold is prompt delivery. To make a mold of steel, grinding and tooling it into shape and hobbing in special designs, takes time. Weeks, and often months, are required to finish a mold of this sort. But the manufacturer who finds a mold that is satisfactory for this purpose among stock molds has only to wait for a chance to get the mold onto a press and production begins at once. Not only that, but he has the opportunity of seeing exactly what kind of box or container will be delivered when production begins. Samples are almost always available, and the manufacturer can look them over, choose one that meets his requirements of size and price, and if he chooses



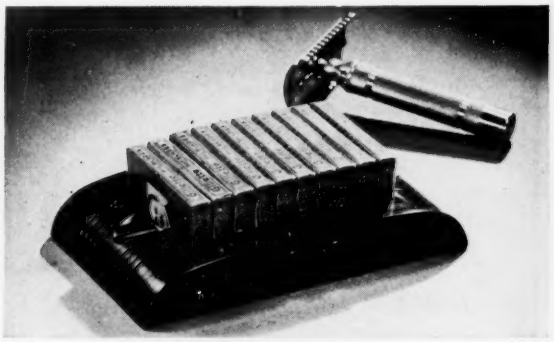
27. Highly decorated ring boxes of urea and phenolic plastics with patented spring hinges.



28. Instrument case with interior partitions molded integral with the base.



29. Celluloid playing cards in a phenolic base box with urea cover. Photo courtesy Cruver Manufacturing Co.



30. Razor blades merchandised in ash tray premium-package. Photo courtesy Bakelite Corp.



For BEAUTY *and* STRENGTH REILLY INDUR *Plastics*

Beauty and strength are outstanding characteristics of articles molded from INDUR Plastics. Beauty that means sales appeal . . . the beauty of a high, lustrous finish in rich blacks, beautiful mottled effects and colors, and faithful reproduction of fine detail. . . . Strength that assures maximum service and protection against wear and shock, while permitting lightness of weight in design.

INDUR Molding Compounds are manufactured in several grades and degrees of plasticity. Whether your primary requirements are for beauty of finish, unusual mechanical strength, or for high resistance to heat or for high dielectric strength, INDUR Plastics can be depended on to give satisfaction. Special grades are available to meet special requirements.

Samples and detailed information will be gladly sent on request.

Reilly COAL TAR PRODUCTS

REILLY TAR & CHEMICAL CORPORATION

EXECUTIVE OFFICES: MERCHANTS BANK BUILDING, INDIANAPOLIS

NEW YORK: *500 Fifth Avenue* • CHICAGO: *2513 S. Damen Avenue*

MINNEAPOLIS: *St. Louis Park*

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KURZ-KASCH INC.

WIN NEW PROFITS WITH TRANSPARENT PACKAGING

KURZ-KASCH will show you how

When you want something different . . . something striking . . . something that spotlights your product's eye appeal . . . turn to transparent molded packages by Kurz-Kasch. These beautiful moldings enable you to take fullest advantage of packaging's latest trend.

The two boxes illustrated at the left are molded from Crystalite. The doctor's four-compartment medicine case (for Eli Lilly & Co.) is of Lucite. Both materials are exceptionally well suited to packages of this type. Both materials are molded with unusual skill by Kurz-Kasch craftsmen.

Call in a Kurz-Kasch representative the next time you have a packaging problem. Kurz-Kasch moldings . . . made in a modern plant with the latest facilities and equipment . . . may be just the thing to set your product off from all others.

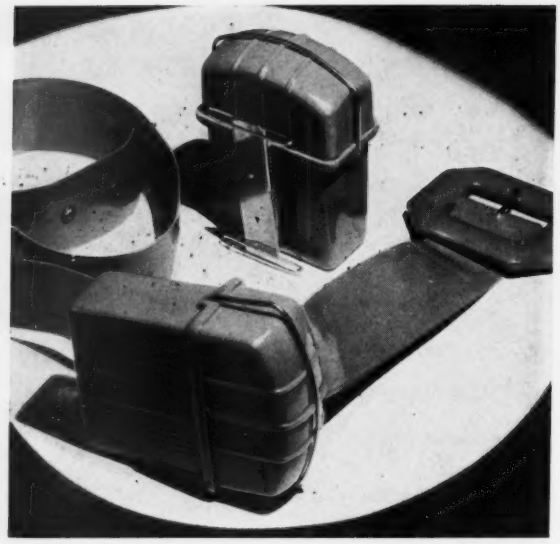
Remember . . . no piece is too large, no part too difficult for Kurz-Kasch to handle. And any one of the preferred materials may be specified.

KURZ-KASCH, Inc., Dayton, Ohio

Headquarters for Molded Packages

DAYTON, OHIO

Branch Sales Offices: New York, Chicago, St. Louis, Dallas, Cleveland, Los Angeles, and Jackson, Mich.



31. Cigarette carrier for beach use molded of urea. Photo courtesy Detroit Molded Products Co.

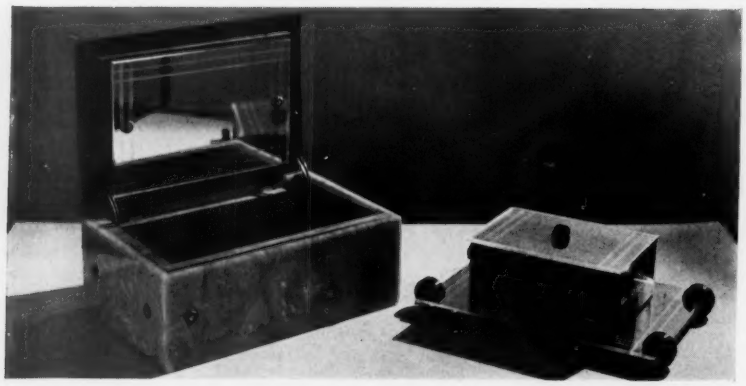


32. Phenolic materials form this re-usable fruit cake bowl. Photo courtesy General Plastics, Inc.

to do so, can order a hundred or so for test purposes in obtaining sales reaction before he orders the quantity he will eventually need. Of course, in small quantities of one hundred, these boxes will cost more than in larger quantities but, even so, the expense is often justified by the satisfaction of knowing in advance just what results can be obtained. Sample boxes or containers from a specially designed mold are often very expensive because a single cavity mold must be made and finished and this cost must be absorbed by the manufacturer before any boxes are produced. Changes and corrections are likewise expensive. But when containers are made from stock molds that have already been proved, these annoyances and additional expense are entirely avoided.

Since molds of steel are good for exceedingly long runs of production without appreciable fatigue or wear, there are many of them throughout the country that have served their original purpose and are stored away in molders' shops. Because one of them might have been designed to produce boxes in which safety razors were sold is no reason why it is not equally suitable to hold another product now that the razor is no longer merchandized in that kind of box. Many of these boxes can be fitted with interior compartments at small additional cost and become entirely individual to the merchandise they now contain. Especially is this true if color combinations are changed.

Light and dark colors can be molded from the same mold. Even the cover and bottom of a box may be molded in different colors with the same operation although this requires some ingenuity on the part of the molder and is not usually done. Lighter colors add somewhat to the cost of the box—black, dark brown, green, red and mottled being among the less expensive colors of molding materials. Another thing to be remembered in ordering plastic moldings from stock designs is that this places no handicap upon the buyer in choice of materials. These boxes are not ready-made. They are in no sense old stock. When a manufacturer orders boxes or other items from stock molds he has the privilege of specifying the exact materials he wants used in molding his boxes. This is particularly important in ordering boxes to be used for creams, powders, and other cosmetics, and the advice of your molder in the choice of materials should be taken seriously.



33. Cast resins combine attractively with mirrors and glass to form these jewel cases. Photo courtesy Catalin Corp.

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SECTION NINE

DISPLAYS

Pages 313 to 346

COUNTER DISPLAYS

WINDOW DISPLAYS

FLOOR STANDS AND ISLAND DISPLAYS

SHEET METAL DISPLAYS

WIRE DISPLAYS

PLASTIC DISPLAYS

WOOD DISPLAYS

MOTION AND LIGHTED DISPLAY MECHANISMS

DECALCOMANIA FOR DISPLAY

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COUNTER DISPLAYS

by MERLE D. PENNEY*



1. The jumble basket is an ideal merchandise counter display presenting product, pictures, copy and price, all in a small area. Photo courtesy The Forbes Lithograph Co.



2. A product-selling card with merchandise held in position behind die-cut portions of the display. Numerous other methods of attachment are possible. **3.** A combination deal display using an actual premium mitten as a portion of the display, with packages worked into the foreground. Photo courtesy Zipprodt, Inc.

Chain stores proved some years ago that when goods were moved from shelf to counter, sales pyramided—in some cases as much as eight times. This was the result of simply placing the product packages out on the counter where they could be seen and picked up for examination by the prospective purchasers.

The next logical step in aggressive point-of-purchase merchandising was the introduction of a counter display on the counter with the product. In other words, placing an auxiliary salesman in the store to cooperate with the retailer and his clerks, who, though their intentions be of the best, cannot push and promote every one of the thousands of items that make up the stock of the average retail distributing outlet.

This auxiliary salesman occupies a prominent position on the dealer's counter and delivers the manufacturer's own carefully prepared selling message to the audience in the store.

Functions of the Counter Display

Just as in the case of window displays, the counter display has two primary jobs to do:

1. SELL THE DEALER

   Counter space in retail stores is extremely valuable. The items that are fighting for this valuable "down front" position are legion. The counter display must appeal to the retailer as a vital sales-building unit that deserves a part of his counter space—a unit that will help him build profits.

* Sales Promotion Manager, The Forbes Lithograph Co.

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2. Sell the Shopper

Counter displays, correctly conceived, developed, and executed, will perform a coordinated series of selling acts, as follows:

(a) Suggest pick-up of product; (b) invite inspection of product; (c) extol product virtues; (d) dramatize, by picture and copy, product superiority; (e) suggest and illustrate product uses; (f) urge purchase of product.

In addition to these two primary functions, there are other specific jobs the counter display can perform. A few of these are:

3. Tie in with Advertising in Other Media

To the shoppers' roving eyes the counter display instantly identifies the product that was mentioned "on the air," or described in magazine or newspaper, or illustrated on posters, or window displays.

4. Remind of Forgotten Needs

Many a sale (impulse sale) has been incited by a counter display when the shopper, after ordering everything on the shopping list, takes a quick glance to right and left to make sure she hasn't forgotten some item that she needs. The small display basket is an ideal example of developing impulse sales by going after the change that is due a shopper after paying for planned purchases.

5. Describe Special Premium Offer

Much use has been made lately of counter displays in describing a special premium offer that is part of a campaign. In many cases, an actual premium is incorporated in the display.

Kinds of Counter Displays

A few general classifications will encompass the wide variety of counter displays seen today in retail stores of all kinds. There are so many structural variations possible for displays of each type that no attempt is made in this article to illustrate all of these.

Other illustrations of printed and lithographed counter displays will be found under the heading Folding Cartons and Display Containers in the Paper Box section. Counter displays of metal, plastics and wood are illustrated in the articles on these subjects on the pages which follow in this section.

1. Counter-Display Card

The ordinary square-cut or die-cut card, lithographed or printed, that stands on the counter—either by itself, or in conjunction with a pile of the product packages.

2. Product-Selling Card

The lithographed or printed counter card that has a quantity of the product packages attached to the face of the card in any one of a number of ways—with rubber bands, with metal clips, held by die-cut tabs, fitted into die-cut openings, etc. This type of counter card reaches the dealer filled with the merchandise and is ready to be placed on the counter and go to work immediately, selling.

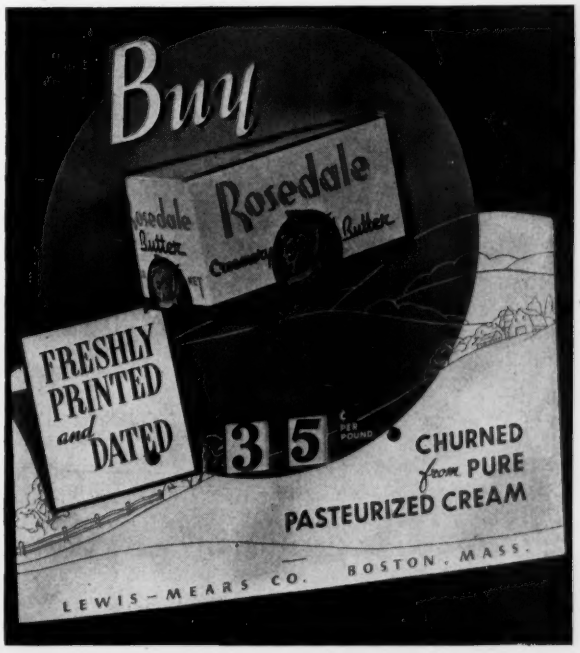
3. Product Displays

(a) The type of display piece that is so designed

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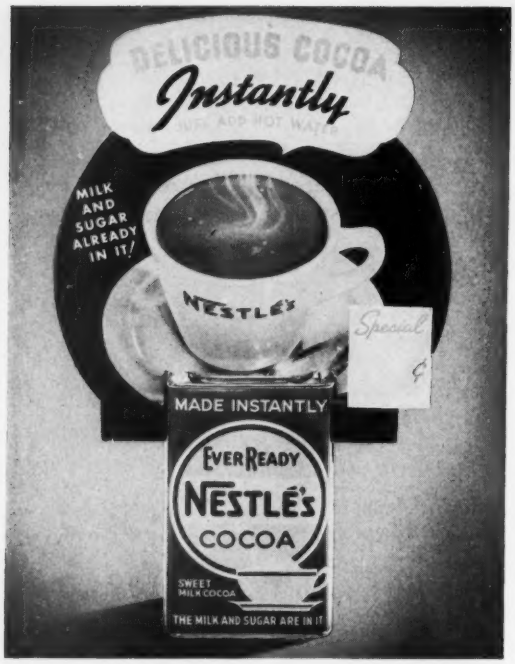


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4. A conical type of counter display formed of a single sheet, lithographed on one side and bent to provide a support for the package. Photo courtesy National Process Co. **5.** A unit which endears itself to the dealer because it incorporates a changeable price-marking feature. The three-dimensional effect is secured by inserting the actual package through a die-cut hole. Photo courtesy The Forbes Lithograph Co.

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6. A counter display card designed to fit over the actual package and thus to tie in with the product while occupying a minimum counter area. Photo courtesy Oberly & Newell Lithograph Corp.

and constructed that attention is focussed immediately upon packages that are an integral part of the display itself.

(b) Similar to "(a)," and so constructed that an illusion is created of product pouring forth from the package, and other apparent action, without the expense of mechanical movement.

(c) Similar to "(a)," but at the same time holding and proffering some descriptive booklets or folders, recipes, etc.

(d) The same type of display, but displaying and describing a combination consumer deal of two or three related items.

4. Jumble Display Basket

This type of counter display has grown so in popularity that it falls into a separate classification of its own. In the display basket the product is presented in a jumble display that invites inspection and self-service, particularly to those people who instinctively hesitate to disarrange an orderly array of product packages. The display basket usually is shipped to the retailer folded flat, and in the shipping container that carries the product. The retailer then quickly places the basket on the counter and tosses in the product, immediately creating an inviting jumble of product packages backed up by an attractive and convincing sales story presented on the panels of the basket.

5. Display Container

A lithographed or printed container that usually reaches the retailer filled with the product. The retailer raises the cover to display position and sets container on the counter as a display.

6. Metal Rack

This is a permanent form of counter display that can be used where it is not essential that there be those important and more or less frequent changes of approach, illustration, and copy. (See articles on wire displays and sheet metal displays.)

7. Novelty Counter Display

Lithographed or printed counter displays so designed and constructed that some device is made a part of the display piece that gives the shoppers something to do—something to twist or move—that will center their attention on that display while awaiting their turn at the counter—during which time, of course, the selling message and illustration on the display have a grand opportunity to register and to click.

Distribution of Counter Displays

Various methods are available for the proper distribution of counter displays, and the most suitable method for a specific product must depend upon the many factors considered when planning and developing the display.

1. Shipping with the Goods

Because of their convenient size, many counter displays are so planned that they can travel in the shipping container with the product.



7. Close tie-in between display and product is effected on this multi-plane beer display. The bottle rests on a small platform piece connecting the front and back panels. Photo courtesy The Forbes Lithograph Co.

YOUR MEAT-MAN KNOWS...

Simply delicious!



SQUIRE'S *Branded* PORK



MAMMOTH 24-SHEET REPRODUCTION
FROM DIRECT COLOR PHOTOGRAPH *by* FORBES



Whether the reproduction from a direct color photograph is to illustrate a diminutive Package Insert . . . to take its place in Booklets or Folders, or on Calendars, Charts, Displays, etc., . . . or to appear in the tremendous and dominating 24-sheet Poster size . . . FORBES craftsmanship and precision production assures maximum faithful portrayal of all the drama and realism caught by the all-seeing lens of the camera.

CREATIVE LITHOGRAPHERS FOR SEVENTY-SIX YEARS

THE SHOP BY THE SEA

Consult FORBES FOR CREATIVE COOPERATION

FORBES LITHOGRAPH CO.

P.O. BOX 513 • BOSTON

NEW YORK • PHILADELPHIA • CHICAGO • CLEVELAND • ROCHESTER • DETROIT

2. Delivery and Set-up by Salesmen

The sales organizations of many manufacturers are so organized that the salesmen can hand the retailer the counter display personally, or, better still, can set it on the counter with some of the product.

3. Display Service Organizations

There are many such organizations operating throughout the various fields, installing both window and counter displays.

4. Offering by Direct Mail

Direct-mail pieces can be developed to send to jobbers and retailers, describing and offering counter displays on request.

5. Advertising in Trade Papers

This is a practice that is growing rapidly, as any analysis of trade-paper advertising will indicate. One big advantage of this type of distribution and the direct-mail contact is the fact that an actual request for the display is made by the retailer—and a requested display stands a good chance of finding display space on the counter.

Evaluation of Counter Displays

If counter displays are the only advertising and promotion being used, the matter of checking results is comparatively simple. The sales, as compared with sales prior to the time the counter display was put into use, should give a good indication as to the effectiveness of this medium of advertising.

Even though other forms of advertising are being used, the effectiveness of counter displays may still be gauged by careful and intelligent checking; and, if good judgment is used in selecting testing areas with regard to types, classes, and locations of retail outlets, a comparatively small and inexpensive test should give a fair indication of the whole endeavor.

For a comprehensive check-up, however, the surest way of getting positive results is to employ the services of some research organization that has the personnel and experience necessary to obtain an accurate evaluation. Manufacturers operating a large retail sales force have that means always available for checking counter-display effectiveness.

WINDOW DISPLAYS

by MERLE D. PENNEY*

One main objective in window display advertising is, of course, the development of a window display that instantly will become a positive traffic-signal controlling the flow of consumer traffic passing in front of each retail store. Window display, by its forcefulness, will operate as a red light and make the traffic stop, and then, by its convincing merchandising idea, copy and illustration, change to a green "go ahead," and induce that flow of consumer traffic to change its direction and enter the store and shop.

In order that we may develop window displays that will approach maximum effectiveness, it becomes essential that all factors incident to the planning, development, and distribution of these displays be studied and weighed. But, first, let us consider some of the *reasons why* for window display advertising. Window display advertising enjoys advantages that are peculiar to point-of-purchase advertising media.

1. Minimum of Waste Circulation

Displays in a store window are directed to the people who travel on the sidewalk in front of that store and to those who enter the store, the overwhelming majority of whom live in that neighborhood and are immediate potential customers of



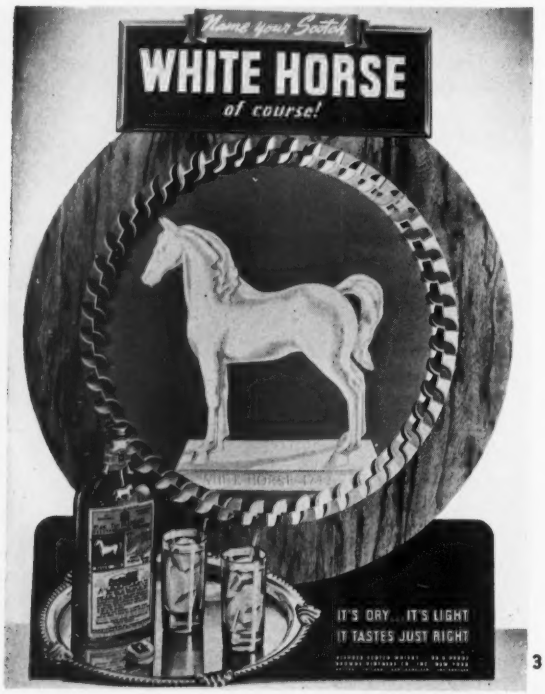
1. Display units of large and small size provide flexibility to meet the varying needs of smaller and larger retail store windows. Photo courtesy The Forbes Lithograph Co.

*Sales Manager, The Forbes Lithograph Co.

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that store. This is an excellent positive type of circulation where an urge to buy instigated by the display can be satisfied on the spot.

2. Selectivity of Coverage
After considering the type of circulation afforded by window display, it is but a short step to a full comprehension of the ideal manner in which window displays provide the means for a very selective type of coverage. Displays can be directed to specific areas:
(a) To stimulate sales in a lagging sales area;
(b) To promote a specific product in certain class areas;
(c) To make, or supplement, a new product sales test, and for any other special purpose, as well as provide a more general sectional or national coverage.

3. Winning Dealer Good Will
It would be impossible for dealers, individually or in groups, to provide themselves with the wide variety of high-grade lithographed window display material that is so universally employed in present-day merchandising. The unit cost would be prohibitive. The manufacturer, however, by buying in sizable quantities, is able to employ the services of skilled advertising men and display producers of outstanding ability; men and organizations whose experience and contact with modern merchandising fit them to create and produce potent and forceful displays that possess real selling punch.

4. Cumulative Effect
This matter of cumulative effect of repeated showings is a vital factor, present in every window display campaign, that is apt to be forgotten or overlooked. With the same window display present in store windows scattered throughout a town or city, consumers and shoppers are exposed to these many displays as they circulate about, on their way to and from work and shopping, and these many impressions often combine to instill a desire and incite definite purchasing action.

4



2. Lithography forms the background of this two-panel syndicated unit. The bread illustration is silk-screened and changes from city to city. Photo courtesy McCandlish Lithograph Corp. **3.** Unusual die-cutting gives a three-dimensional effect to the border of this window unit. A series of flanges die-cut into the sheet form a recessed gilt frame when the easel is set up. Photo courtesy Einson-Freeman Co., Inc. **4.** Three-dimensional figures top this lithographed, die-cut unit to achieve dominant display values. Photo courtesy Polygraphic Company of America.

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Functions of Window Displays

There are many ways in which a window display can, and must, serve both the manufacturer and the retailer. These align themselves definitely under two fundamental functions:

1. The display must sell the storekeeper or dealer on the idea of making proper use of the display. To do this the display should:

   (a) Be sufficiently attractive, outstanding and forceful to deserve and win a showing in his valuable window space in competition with other displays promoting other products.

   (b) Be of such a nature that it will stimulate the interest of the retailer and his clerks in that product during the time the display appears, fostering their goodwill and co-operation.

   (c) Win a place inside the store—after it has been taken from the window, on a top shelf or back bar, to continue as an influence on buying action.

   (d) Provide a co-operative means whereby retailers can sell more of their complete line. When good displays of this type have been developed, the final results have been most gratifying to manufacturer and retailer alike.

2. The display must prove its worth by influencing shoppers to purchase the product. In order to accomplish this, the display should:

   (a) Command the attention of the passing shopper by any one of a number of means; size, comprehensiveness, attractiveness, domination, unusual design, motion, startling display effect, etc.

   (b) Develop points of interest that will hold the attention long enough to incite a favorable product interest, and exert an influence on buying action.

   (c) Act as a stop-gap, by reminding of the product during the interval that elapses between the time the advertising message is seen in other media and the time the purchaser stands in the store asking for the product—a period of time during which many factors may influence a change of mind.

   (d) Impress the observers with the quality and desirability of the product.

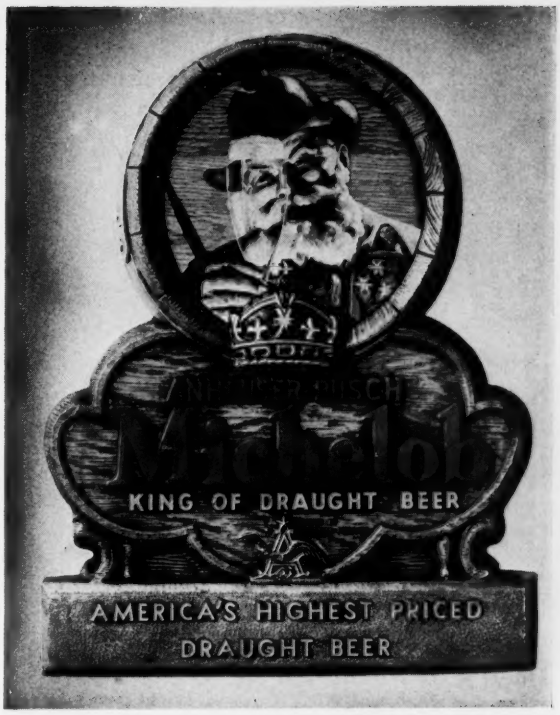
   (e) Remind of forgotten needs, or intended and desirable purchases.

   (f) Tie in with advertising in other media, supplementing the other advertising by emphasizing the high spots and illustrating the message in an attractive and colorful manner.

   (g) Introduce new products quickly and economically, when other media do not seem to provide the same selective type of promotion that is inherent in window display advertising.

Developing a Window Display

In the creation and development of window displays, the display specifications will be governed by many of the factors considered in planning for them, as well as the following:



5. Counter display unit combining lithography with high-relief embossed plaque work created by a special process. Photo courtesy Chaspec Manufacturing Co.

1. Appeal: The basic sales appeal must be decided upon—in other words, the line of attack.
2. Idea: Determination of the display idea that will best fit the situation, and the most effective way of presenting that idea to the buying public—by illustration and by copy.
3. Art: The art treatment should be in keeping with the nature of the product, the class of trade, the type of retail outlets, and the trend of the times. The subject must be unusual and outstanding in its particular nature—beautiful, humorous, startling, educational, seasonal, etc.
4. Copy: The copy must be fast reading as it is being directed to people who, on an average, take only seven steps in passing a store window.
5. Construction: The physical or mechanical construction of the display, while it should be unusual, unique, clever or striking, must be practical above all things. Storekeepers no longer have the time, nor the patience, to play at pantomime acting or mechanical engineering.
6. Extra Features: Attention-getting devices can be worked into the display—light, mirror effects, illusions, motion, etc.—but it must be kept in mind that these extras increase the unit cost of the display, necessitating greater total expense or smaller coverage. Certain conditions will warrant such devices, others will not. Simplicity of design, or distinctive treatment of effect, when





6. This unit uses a comic trade mark character to attract the distant eye and direct color photography to detail an appetizing picture of the product in use. Photo courtesy Einson-Freeman Co., Inc. **7.** All the elements of this unit focus attention towards the packages of gum soaring over the heads of the youngsters in the foreground. A multi-plane construction increases attention value. Photo courtesy The Forbes Lithograph Co.

carried out by real creative artists, will many times prove most effective.

7. Economy: Economy in display production, without sacrifice of quality, is important. Proper consideration of display sizes and shapes, as they relate to economical sheet layout and other production operations, is of the utmost importance.

Distribution of Window Display Material

It is not enough to pass through the throes of creating and developing a window display of just the type and adaptability that will successfully perform a specific merchandising job, and then broadcast these displays indiscriminately throughout the trade in the smug, self-satisfied conviction that *your* display—your baby, as it were—is the one display of importance in the lives of your retail distributors.

Retailers are getting hundreds of unsolicited displays each year, so poorly conceived and badly executed that they get but a cursory glance from the retailer and are consigned unused to the cellar or the rubbish barrel. However, the presence of these poor displays should but emphasize the importance of making *your* display a selling tool the retailer will welcome and use to your mutual satisfaction and profit.

Properly promoted and intelligently distributed window displays will appeal to the retailer as a piece of product advertising that it will pay him profits to use.

The type of product, the extent of territorial coverage, the size and comprehensiveness of the displays, the quantity, the retail problems in that industry—all these should enter into a consideration of the proper method of display distribution.

1. Methods of Distribution

(a) Shipping the displays in the same container with the goods.

(b) Installation by professional display service organizations.

(c) A large corps of retail salesmen is a "natural" for proper and effective display distribution. The salesman not only can see personally that his display is used, and used properly; he can, if desired, watch the results and check with the retailer.

(d) Another method of window display distribution is thoughtfully planned trade-paper advertising to the retailers, showing what display material is available, its nature, what it is designed to accomplish, and how to get it.

(e) Another way, of course, is to contact the retailers by direct mail, furnishing return postcards on which the retailers can request the display material. Requested display material gets put up—there's no question about that.

2. Set-Up Instructions

Informing the retailer just how to set up the display, and what to include in the window with the display, is an important phase of distribution.

(a) An instruction sheet can be tipped on the back of the display, carrying an illustration of an interesting window arrangement with the window display in place, and an actual listing of suggested products to include with the display.

(b) Pasting one of the instruction sheets on the outside of the window display container indicates to the retailer just what is in the container and the desirability of making a place for that display.

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FLOOR STANDS AND ISLAND DISPLAYS

by HECTOR P. HUGHES*

The floor stand or island display has become so popular and has proven its worth so many times that it is now accepted as a vital part of almost every sales campaign. The counter was the first spot to strike the merchant as a place to display his goods. The success of counter displays became so great that in late years practically the entire counter has been given up to them. Competition has become so keen for this space that now only the most effective are used at all. Many counters have become so cluttered with a conglomeration of displays and merchandise that sometimes the goods are little better off than they were when they were back on the shelf.

It was this congestion that suggested to the logical mind the use of island displays on the floor. Not only did this open up new possibilities in regard to space, but it also widened the scope enormously of the type of goods that could be displayed. Hitherto only small units of the less bulky goods were adaptable, but now whole cases of some of the heaviest goods are placed in island displays in mass formation to catch the customer's eye.

Island displays may be made from corrugated fibre board or solid fibre board. Those made from solid fibre are usually lined with a multiple colored lithographed sheet. It is only occasionally that the corrugated displays are made in this way. Lithographed displays on the whole are comparatively expensive, and for this reason they are usually confined to the higher priced line of goods sold in drug stores.

Corrugated displays are printed in two or three colors with rubber plates. With the development of glossy inks these now compare very favorably in appearance with the lithographed display. Because of the use of rubber plates, the direct printing on the combined board, and the lower cost of materials used, these displays are comparatively low in cost. Most of the floor displays seen today in grocery stores are of this type.

Floor displays have progressed through a logical series of steps into the prominent field they hold today. The earliest type of display was made by printing on the shipping case a dotted line extending across the front and diagonally up the two sides. The merchant was instructed to cut along this line and bend the front half of the box back on top of the other half. This made a couple of steps on which the goods could be displayed. Although this is still used considerably today, it has several unavoidable drawbacks. First, not many clerks have—or will take—the time to do this. Second, the cuts are usually ragged and the result is not a very attractive display. Third, there is always the possibility of damaging the contents.

The trend then was to make the display entirely sepa-

* Robert Gair Co., Inc.

1. Jumble display is provided by the top sections of these island floor stands. Note the recesses designed to securely hold individual packages at the corners of the unit. Photo courtesy Robert Gair Co., Inc.



2. This two-faced island stand advertises mayonnaise on one side and sandwich spread on the other. Die-cut recesses hold extra packages. Photo courtesy Robert Gair Co., Inc.



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3. A substantial type of floor stand with a flared display basket used for the cooperative display of various brands produced in a single region. Courtesy Einson-Freeman Co., Inc. **4.** A tiered display to hold a number of types of merchandise sponsored by a single manufacturer. Photo courtesy The Ottawa River Paper Co. **5.** Self-service floor stand to display a large range of soups. Steps facilitate selection of various types of product. Photo courtesy The Hinde & Dauch Paper Co.

rate from the case. As a result the floor stand grew more and more elaborate and complicated, until it took almost an engineer to set one up. This was all right for the distributor who could send his own men out into the field to set them up, but the average manufacturer or distributor is not in a position to do this. The result was that a large proportion of the displays distributed were never used at all.

There are two trends that as a result of the foregoing are noticeable today. First is the trend toward simplicity of construction—a floor stand to be really successful today must be simple. There should be a minimum number of parts to handle. Although complete set-up instructions are given with every display, it should be apparent how to put it together without the instructions. Very few store clerks have the time or patience to work out an elaborate blue-print of instructions for setting up the display.

What used to make this display so complicated was the elaborate interior supports that were worked out to support the shelves or bins. The design engineer has eliminated these interiors by a few simple and novel changes in the shape of the outer walls. The lower portion of the walls are cut and creased in such a manner that they now directly support the contents of the display.

One of the largest chain stores solved their interior support problem more directly. All their stores have empty egg crates lying around. They insist that all their stands shall fit over one or more of these egg crates. Since the crates cost them nothing, they can afford to spend more on dressing up the outside of the display.

This trend toward simplicity has been somewhat offset in the last year with the appearance of the super markets.

The super market demands super displays. As a result displays are beginning to make their appearance in a size never thought of before. These are usually built in such a manner that they can be approached from all sides. Usually they stand in the center of a store and are built up in the shape of a pyramid. These displays may be a single unit or, for greater flexibility, they may be a number of smaller displays grouped together to make one large mass display.

The latter method is the most satisfactory as it makes the same display available to both large and small stores. In the large stores and super markets it also makes them more adaptable for individual needs. For instance, where the store has long aisles, you will find 20 or 30 units placed end to end running the full length of the store. Another store may have little aisle space but a big center area. In that case, they will bunch the displays in a more or less rectangular shape and fill them up to overflowing so that it looks like one mass display.

The second trend worth noting today is the reconsideration of the old shipping case. Many manufacturers are asking today, "What about my shipping case—haven't I there a foundation for a floor stand? What can I do to dress up the old case and make it do some real advertising for me?" The small firm that cannot afford large appropriations for advertising, and the large firm manufacturing a highly competitive product, are both giving serious consideration today to the possibility of exploiting the old shipping case. As a result rapid strides have been taken in dressing it up.



6. A low level island stand upon which the dealer may build pyramids of merchandise. Photo courtesy The Ottawa River Paper Co.

In some instances it has merely involved more elaborate printing to turn the case into a travelling billboard. A further step along this line has been the introduction of various colored boards to replace the usual drab kraft color. A still later innovation is the use of overall printing. This is done with a special press on the liner before it is combined into a corrugated sheet. It serves to identify a manufacturer's brand by making it stand out from the common run of packages that surround it. While the overall design identifies a manufacturer's whole line, it is customary to super-impose additional copy to identify the product in a particular package.

In developing or re-developing the old shipping case there has also been considerable thought given to its construction. The problem has been to find a way of easily converting the case after its arrival at the store into a shallow bin or platform on which the contents could be attractively displayed. One of the most popular ways of doing this today involves merely the addition of an extra score through the middle of the top flaps. The case may be sealed and shipped in the regular manner. When it is opened the top layer of goods is removed, and the flaps are then bent inside. The end of the flap above the extra score is bent to form a right angle and they are held in this position by a special slotted pad that has been shipped in the top of the case for that purpose.

Another well known combination calls for full overlapping top flaps. The platform is formed by bending in the front flap and the side flaps are joined to the back flap and are diagonally cut and scored so as to form the back and sloping side walls to keep the goods from falling off.

One of the largest manufacturers of facial tissues uses a case of this design every year to step up their fall sales. They have found that a small increase in the expense of the shipping case shows real profits in increased sales. Another interesting point in this connection is that they have successfully introduced this case into drug stores, where it has to stand comparison alongside smartly dressed lithographed displays.

A third successful combination is a two-piece display case consisting of an outer tube and an inner box. The tube is cut and creased so that the sides can be bent in to form an easel. When the store clerk receives this box, he simply slides the case out and stands it on the tube, and he has a complete display ready to do a selling job for him. One of the well known cracker bakers experimented with this package. Whereas they had been packing six packages to a case, they decided to pack twelve packages in this new case. Formerly they were accustomed to sell 5000 cases of the half-dozen pack in 60 days. With the new pack they sold 1500 of the one-dozen pack in one week. Although after the first week this slowed down a little, the sales over a considerable period of time remained far above what they had been before.

Most of these efforts have been confined, until recently, to the cases that are big enough to stand on the floor and make a fair sized display. When the same methods have been applied to some of the smaller cases, they have not been so effective. The small case is lost on the floor and the corrugated of which it is made looks too bulky and ungainly if the dealer tries to place it on the counter near to one of its smart appearing folding box cousins. This is particularly true if the case has been soiled, as it usually is, in transit.

In the last few months even these objections have, to a large measure, been overcome. Some very simple, yet novel ideas, have been worked out. It is now possible to print all of the elaborate copy which is to be shown when the case is set up as a display on the inside of the top flaps. In transit this copy is now protected from all possible damage. Instructions on the outside of the case tell the dealer how he can bend the front flap forward and the back flap upward to reveal the sales message. The side flaps bend down and under the box to lock together and form an easel that tilts the box forward to better display the contents. Some of these cases have proven so attractive and practical that a place of prominence has been made for them back on the counter.

Lithographed Floor Stands

Lithographed floor stands are produced in all sorts of designs, usually in a number of bright colors, the paper sheets being mounted on heavy solid fibre, which can be die-cut into any desired shape. The exponents of the lithographed floor display stand contend that their sales medium is greatly superior to other forms, due to the fact that through presentation of the sales message using illustrations and in full color they secure larger, more immediate, and more convincing consumer attention, as well as winning over store owners who



7. This floor stand forms a display table for demonstrator's use. The compartment below provides space for additional stock. Photo courtesy Oberly & Newell Lithograph Corp.



8. A simple unit for displaying large packages of cookies. Note the slanting shelf designed to face the packages slightly upward towards eye level and to increase their stability on the display. Photo courtesy Robert Gair Co., Inc.

have demonstrated their willingness to give them preference, because of their high character, colorful interest, and greater effectiveness in making sales.

While there is a great deal to be said in favor of this line of reasoning, it must also be borne in mind that lithographed floor displays are necessarily more expensive. If funds are available and distribution is effected through the larger stores, where competition for display space is almost as much a battle as between products, it would seem obvious that the most effective display stand possible to secure would prove the most economical in the long run. However, when distribution is largely confined to the smaller stores, the convertible shipping container and display stand will permit coverage of a wider number of stores, with due allowances for bringing out something new and interesting by the time the novelty has worn off of the previously used stand. It would seem, therefore, that each type has its advantages and applications, and selections will best be determined on the basis of individual facts and conditions.

Regardless of the materials used or the method of reproducing the copy message, it is of primary importance to design floor stands so that they will *sell merchandise*. They hold a unique position in retail-store merchandising for they are placed out in front of the counter, mixing right with shoppers, prior, during, and following purchase of the "demand merchandise" which brought them into that store to shop. This preferred display position places the product within easy reach, immediately suggests picking up one for detailed examination, and is an opportunity few shoppers can resist. Thus by the combined appeal of the display stand and the product a definite sales stimulus is provided that moves merchandise quickly and profitably off the stand, out of the store, and into the consumer's home. The popularity of the serve-yourself principle, so widely used in the merchandising of consumer goods, simply means that consumers like to see and feel the goods they are going to buy, both of which are effectively accomplished by floor displays, which annually make millions of individual sales without effort or attention from clerks.

SHEET METAL DISPLAYS

by S. R. WORTH*

Of the many types of materials used in the manufacture of merchandising displays and similar products, sheet metal stock is one of the most popular. Cheapness, strength combined with little weight, pleasing appearance, durability, and ease of fabrication are some of its qualities, while one of the most important is the ease and economy in coating and decorating by lithography. Displays made from tin plate or similar sheet metal stock are economical to build, need little bracing as they have sufficient strength and rigidity unto themselves and in large quantities are not only inexpensive but may be used over long periods.

Although there is a similarity in the manufacture of metal displays to that of metal cans and closures, in the materials, in methods of production and in decoration, it is a much more highly specialized and less mechanical business. Each particular display is a distinct production job requiring the working out of special designs, estimates, and the planning of production operations.

Combining other popular materials, such as chrome, gold bond and plated finishes with lithographed or silk screen processed reproductions often enhances the attractiveness of a metal display piece, making it acceptable under the most critical circumstances. Other materials utilized extensively are glass, mirrors, wood, rubber, castings, plastics, fabrics, and electrical equipment of many types.

The various types of displays may range from step-up or pyramided to round or rectangular, and may have incorporated in them self-serving, dispensing or dealer-help features. The latter may consist of gum tape holders, string cutters, coin and stamp trays, or even compartments to hold other merchandise. Displays may be made rotating or stationary. A popular style of display is the overhead arch which not only attracts attention but suggests a department in itself. In planning a display the relative flimsiness of light gage metal may be overcome by such means as rolling or beading the edges, embossing or depressing surfaces, or rounding the cor-

* Vice-President, Advertising Metal Display Co

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BLACK and WHITE

Black ink, white paper and a thorough knowledge of modern lithographic processes produced the above illustration. • Whether your problem be a full color display (see reverse side) or a one color booklet, a proven solution is a Kindred-MacLean job.

. . . And our creative department is also at your disposal. It, too, is a proven source of selling ideas for many national advertisers.

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ners. With the advent of improvements in sheet metal, principally in ductility, many forming operations which simplify construction have been made possible.

By far the largest number of metal displays produced have lithographed copy. There are several processes, however, by which metal may be decorated. Briefly, they are:

Press Printing: The base coating of the metal is applied by roller coating, while the decorating is done by press printing the paint or enamel directly to the base coat by means of a printing plate made of soft composition material. A clear top coat is usually applied for protection, by roller coating.

Gum Printing: The base coating is applied in the same manner as in press printing, while the lettering or design is transferred in ink to the base coat by means of a hard rubber surface, on equipment similar in principle to that used in printing on paper. A clear top coat is then applied over the surface. These processes are done on the flat sheets and both the gum printing and press printing methods of decoration are used extensively in the manufacture of metal signs, where fineness of detail is not so essential.

Silk Screen Stencil: The base coating is applied in the same manner as in the preceding processes, while the design is applied by forcing stencil paste through a silk screen. In silk screen printing, as in lithographing, much progress has been made in recent years, paralleling that in the printing industry. Silk screening is relatively a new development in printing methods, being about twenty years old. The greatest advances have been made in the last few years. Silk screen plates were originally made by cutting paper stencils and attaching them to the silk screen, and the printing was confined to flat colors. Nowadays, through the use of photo-process methods of producing silk screens, halftone reproductions can be made of almost any subject. Methods used in lithography and photo-engraving are now applied to silk screen reproduction. Where size limitations make lithography impossible, or small quantities (up to a thousand or so) of displays or signs are required, the silk screen method of printing is both practical and economical.

Lithographing: This is produced by very much the same method as is used in gum printing. The difference lies in the method employed in transferring the paints or inks in making the lettering or designs. Lithographing is also done on the flat, full-size sheet and ranges from the simplest effects in one-color coatings to the reproduction of the most intricate designs or paintings. Perfect registration of the most complicated designs and very fine screen photo-litho color work is assured by automatic mechanism. In lithography, the decoration is applied by offset printing presses after the application of the primer or undercoating. By this method, any design printed on paper may be reproduced on sheet metal. The difference between printing on one and printing on the other lies in the fact that there is no drying by penetration of ink. Each coating or printing operation requires baking in a thermostatically-



1. A glass front cabinet with hinged door admitting to back storage space.



2. Slanting open shelves provide dispensing display space for a large volume of merchandise with only a small counter area.



3. Bins in this unit are designed to fit the particular sizes of brush. All photos courtesy Advertising Metal Display Co.

controlled oven, the final operation being the coating and baking of a protective varnish. Lithography means high-speed and low-cost production. Improvements are being made constantly in the process, chiefly along the lines of more speed, improved methods of cleaning the ink rollers, and more automatic working. These will result in lower production costs, especially in small-quantity runs.

As all sheets are lithographed in the flat, it would be impossible to fabricate the metal without the protective varnish. Varnish in itself is now being utilized for decorative purposes and many desirable effects have been obtained.

After lithographing, the sheets are sheared to size and pass on to the pressroom where blanking, die-cutting, perforating, and folding operations are performed. In spite of the operations to which the metal is subjected, the finish is not marred, due to its being baked to a durable hardness and the adherence of the primer or undercoat to the metal surface, and also because of the protective varnish. Final assembly is done by means of rivets or lugs.

Display manufacturers usually use their discretion as to what method of metal decorating to follow. If the quantity is sufficiently large, lithography and roller or machine-coating is used. If simplicity of construction is required, or units are of too heavy a gage metal, or of too large a size to lithograph, displays may be fabricated in the plain metal and sprayed after assembly.

Spotwelding, as well as riveting, may be used in final assembly in this case, and it is particularly advantageous where great strength or rigidity is desired or where rivets or lugs are unsightly. Decorating of sprayed displays is usually done by the silk screen method.

The designer of a display, whether he be the producer or the product manufacturer, has certain considerations which he must bear in mind. Briefly, they may be enumerated as follows:

1. The size, shape, and color of packages or merchandise to be displayed, as well as number of units and general physical characteristics.
2. Where the display is to be used—floor, counter, shelf, or window.
3. How much cost can be put into the display.
4. How the displays are to be distributed:
   a. Given outright to the dealer.
   b. As a premium.
   c. Loaned or sold.
5. In what quantities the displays will be purchased.
6. Whether any special features are to be incorporated:
   a. Self-service
   b. Storage
   c. Dispensing
   d. Dealer help

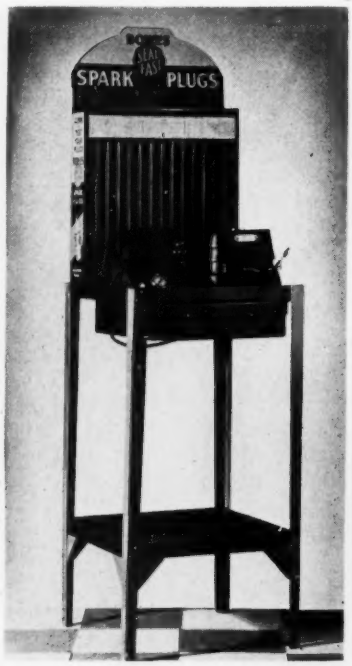
After sketches have been submitted, the design decided upon, and the preliminary data completed, a hand-made sample is submitted so that the product manufacturer has something concrete to examine and test. Simultaneously, the problems of cost, of materials, finishing and fabrication, are being worked out and production can thus speedily follow the "O. K.-ing" of the first hand-fabricated sample unit.

4. A lithographed floor stand with battery shelf in rear for radio batteries. **5.** Spark plug assortment storage cabinet with drawer for tools and work bench. **6.** A cadmium plated card frame and top and a display card channel in the center makes this display readily adjustable. Front provides volume storage with additional storage space in the rear. Photos courtesy of Advertising Metal Display Co.

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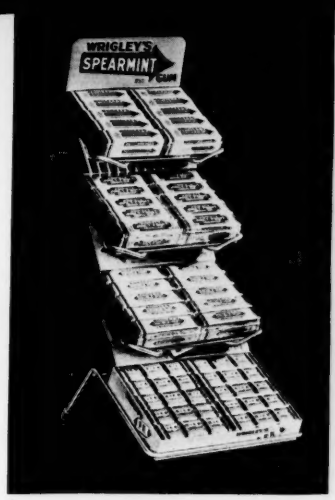
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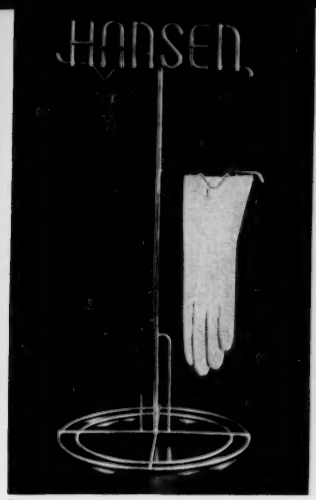


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1 2 3

1. Four-step counter unit. Photo courtesy Washburn Co. **2.** Merchandise display incorporating product name. Photo courtesy Union Steel Products Co. **3.** Two-step merchandise display. Photo courtesy Union Steel Products Co.

WIRE DISPLAYS

by C. D. DAVENPORT*

Wire displays lead the field, with the possible exception of glass cases, in offering visibility of the product. Those who have seen your products advertised with full view pictures, easily recognize them when displayed on a wire rack because the maximum package surface is exposed to view.

Wire displays can be made in practically any size from a small dispenser for packages of razor blades to large bakery racks that hold several hundred loaves of bread. Racks have been built to carry loads of 1000 to 1200 pounds. For practical purposes it is best to limit weight to not more than 700 or 800 pounds, as the cost of reinforcing is usually rather high.

Price is and always will be a necessary consideration. Costs are relatively low on wire displays because they are fairly simple to manufacture. Most wire display manufacturers have the necessary forming and bending equipment to handle practically any type of design without having to add costly dies to the price of the completed display.

The manner of construction often makes it easier to prepare a folding or collapsible rack of wire than of other materials. This is a decided advantage in shipping. Classifications for racks when figuring freight costs are: folded flat, third class; folded other than flat, first class; set up, first and one-half. Wire displays not only are free from bulkiness but they generally are light in weight.

Many companies find it advantageous to use a display that can be packed with the product. For example, a seed company will fill the shelves of the seed rack and insert the display and seeds in a carton for mailing. Wire racks can easily be designed for this purpose.

Often displays are created for widely diversified tasks. For example, a display for anti-freeze is used outdoors during the cold months. The remainder of the year it serves inside the garage or service station as a stand or tray for tools.

Frequently additions or extensions are created for displays that have been previously made. A manufacturer of floor covering purchased a rack to hold large rolls of covering. Later an extension was built when a line of floor mats was introduced. The manufacturer was thus saved the cost of an entire new display.

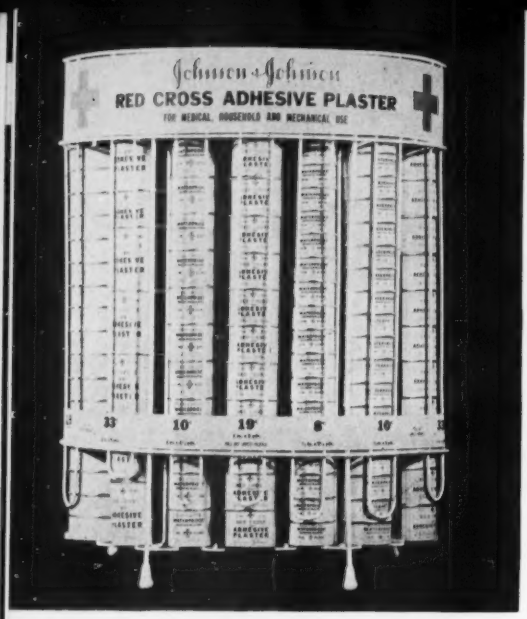
The ability to form wire shapes of practically any design makes it possible to display the product in full view. Wire displays can be made to show gloves, hosiery, sweaters, and other such items, the display following the lines of the product. When such a display is made and the trade name included in wire-formed

4. A gravity operated dispensing unit. Photo courtesy Washburn Co.



* Union Steel Products Co.

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5. A gravity operated dispensing display for drug store items. Photo courtesy Washburn Co.

letters, the manufacturer is assured that the display will be used for his products and no others.

Another feature of wire displays is that they are now designed so they are easy to put together. Seldom are bolts or screws used. Clips, hinges, and other devices are the accepted methods. Great improvements have been made along this line, no tools or mechanical knowledge being necessary to put them together easily.

The most economical finish is either paint or enamel. Plated finishes are more durable, scuff-proof, scratch-proof, and fade-proof, but lack the appeal and warmth of color. Tin or galvanized finishes are very lasting, but because they "freeze" wires together and fill over loops or openings in the wire, they are not recommended for folding or collapsible racks.

Least expensive of the plated finishes are bright copper and bright zinc. Bright nickel, Udylite, and chromium are also available and the cost is about in the order named with bright nickel being the lowest in price.

Chromium is a very popular finish and methods have been worked out whereby a very good imitation of polished chrome can be obtained without the costly polishing process. However, to get the fullest value from chromium and to obtain a mirror-like finish, the display should be polished. This adds considerable to the cost but is often worth it.

Some unusual effects can be obtained by a combination of different colors of plating. For example, a combination of copper and bright nickel or chrome would give an interesting two color effect. The base and standard might be of chrome and the shelves of bright copper.

The newest addition to plated finishes is known as Electrocolor. By this process metal may be plated almost any color or shade. Not only can any color be obtained, but various finishes and degrees of brilliance from mirror-like to eggshell, are available. The colors will not fade but the metal will tarnish unless it is protected by a coat of clear lacquer. Wire displays may also be finished with aluminum bronze paint, or colored lacquer. Ordinary aluminum paint has the disadvantage that it rubs off and does not stand up well under use. Some display manufacturers have reached a high degree of perfection in the development and use of aluminum bronze paints.

There is no limit to the colors obtainable in lacquer or enamel finishes, although display manufacturers usually standardize on from ten to fifteen colors. Displays finished in these stock colors are less expensive than if some special color is required.

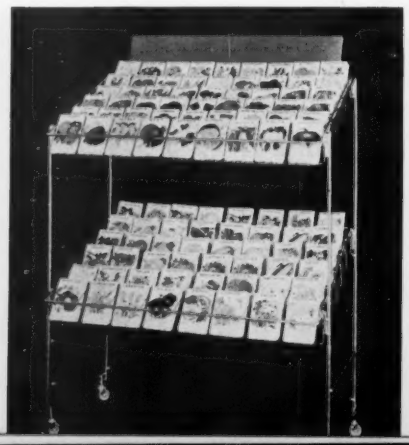
Signs may be made of sheet metal—either lithographed or silk screen process—or they may be formed from wire. Wire formed signs are usually limited to a few words, but they give an unusual, definitely modern, effect.

Although many stock designs are obtainable, most displays are built to order. Construction of wire displays with all corners rounded, fits in very well with the requirements of many users. All displays to be used by chain stores and many department stores must first be passed on by the Underwriters. Nothing is accepted that has sharp corners or projections that might cause injury to person or clothing.

Manufacturers of display racks are usually well equipped to give ideas and suggestions. Some have their own designers who can submit sketches of proposed displays. Frequently samples are made up and the final display worked out from them. In asking for suggestions it is well to give the size of the package, number you wish to display, price limitation for the rack, type of display (folding, rigid, or knock down), style (counter, floor, wall, etc.), weight the display must carry, and which products are to be featured.

6. Two-tier floor stand equipped with roller casters. **7.** Outdoor oil display stand folds for shipment. **8.** Easel type can display rack. Photos courtesy Union Steel Products Co.

6



7



8



XUM

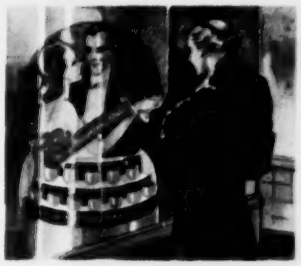
TO HELP SELL YOUR PRODUCTS

Tested ability to apply marketing ideas to color reproduction . . . experience in all processes . . . skilled craftsmen in five plants . . . these factors of safety are yours when you put your problems in the hands of any "U-S" Division.

U-S

Reaching the consumer through eye-appeal . . . that is the prime function of "Sales Spot" Advertising. Window Displays, Floor Merchandisers, Counter Displays, Hangers . . . "U-S" thinks of them all in terms of obtaining effective circulation at the point-of-sale.

Art, Construction, Production, Delivery . . . all are vital. Underlying them, insuring better results, is real KNOWLEDGE of the medium as a merchandising force. You can rely on "U-S".



Window and Counter Displays

Time-tested, these brilliant and colorful signs on store doors, windows and mirrors SELL GOODS at a cost almost negligible,—just a few cents per store per year . . . circulation with minimum waste at minimum cost.

"U-S" Colorgraphic Transparencies *stay* on the job . . . vivid, ever-present reminders, day and night, of your product. They maintain consumer buying habits. They keep dealers sold. They represent true long-run economy in advertising.



Colorgraphic Transparencies

"U-S" specializes in Calendars "tailor-made" for the individual and exclusive use of the customer. Conventional style, also famous "Three-Months-At-A-Glance" design,—a style controlled exclusively by "U-S" and sold only on a restricted basis to one company within an industry or area. Its reasonable cost will surprise you.

Measured in terms of their natural life, their "reminder" value, and the welcome given them, "U-S" Calendars represent amazingly economical and effective advertising.



Colorgraphic Calendars

The "U-S" Erie Plant includes a complete poster organization, with equipment and facilities to handle any quantity, large or small, by photo-projection or straight lithography, with the utmost dispatch and economy.

Meet your prospects in the outdoor world—with "U-S" Posters. "U-S" Posters have long life; they utilize to the utmost the power of color; they make quick, colorful impressions; they SELL merchandise.



Outdoor Posters

The

HQ

* AMERICAN LITHOGRAPHIC DIVISION
* ATLANTIC LITHOGRAPHIC & PRINTING DIVISION
* DONALDSON LITHOGRAPHING DIVISION
* ERIE LITHOGRAPHING & PRINTING DIVISION
* PALMER ADVERTISING SERVICE DIVISION
* W. F. POWERS DIVISION
* THEO. A. SCHMIDT LITHOGRAPHING DIVISION

XUM



1. Bl

PAC

XUM

PLASTIC DISPLAYS

by H. S. SPENCER*

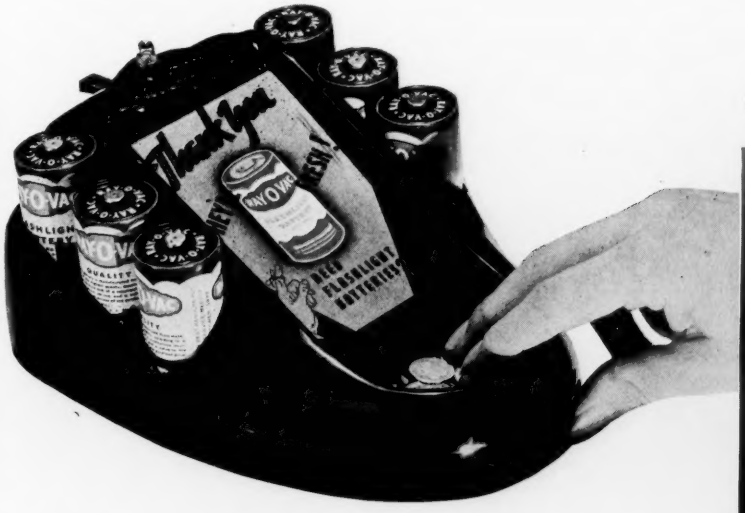
Today there are practically no limitations to what may be done with the various types of plastics being offered. Laminated plastic sheets can be secured sufficiently large to make traveling or counter displays for drug and department stores and for exhibition booths. For point-of-sale displays, urea plastics have been used in combination with both laminated sheet stock, wood, and neon tubes. Ureas have the advantage of translucency and are particularly beautiful when brilliantly lighted. The recently developed transparent plastics have been effectively used for small displays where the object for sale needed protection against handling, yet should be visible from all sides. The advantages of these materials, of course, are that they are less perishable than glass and strictly modern in appearance. Electric razors of several manufacturers have been so exhibited. Phenolic plastics, while opaque, have been successfully used for displays of almost all types and sizes for many diversified products.

Plastics lend themselves exceptionally well to originality of design and are readily adaptable to trade mark as well as replica design. They are formative to almost any shape; rectangular or round; angular or sloping for stairstep or pyramid; for stationary or rotary types. Other excellent reasons for making displays of plastic material include finish, durability, permanence, lightness of weight, great strength and ease of handling. because these inherent characteristics are actually visible to the buyer, a plastic display adds an air of quality to the merchandise it contains, speaks well for the manufacturer and marks the dealer as modernly progressive. These are essential sales features in any line and any subtlety which may help bring about their inference should be given thorough consideration by the designer.

Of course, in the formulation of any display the product and problem of sale or distribution must be given heed before the display is designed. Then, the display has to sell the retailer before it will be used to sell the customer. The designer must take into account the retailer as well as the consumer. Can it be used easily and prominently by the retailer? How much space will he allow on his counter, floor, shelf, window, to help him move that particular merchandise? Is it a low or high profit article? Does it turn over quickly or slowly? Here again enters the question of convenience. Is the consumer to help himself, be served by the retailer from the display, or is it simply an eye catcher to invite examination and question?

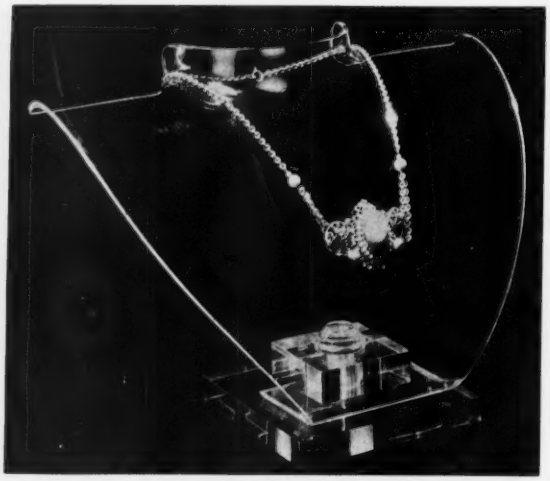
Smokers' pipes, for example, are slow-moving as compared to chewing gum or cigarettes. Therefore, a proper display should be made of a permanent, long-lived material, and plastics fit this requirement. A plastic display is easily kept clean, will not dog-ear or become chipped, marred or broken. Indentures for holding pipes can readily be molded-in, and Roll Leaf or wiped-in lettering of real permanency secured. Every pipe smoker wants to handle the pipe before he buys. Therefore, the design of the display should permit this,

* General Plastics, Inc.


Thank you
NOVA
NOVA
NOVA



3. With molded-in steps, this miniature Bakelite counter unit provides attractive display for chewing gum.



4. A jewelry display fabricated of transparent Plexiglas sheet and block material.



5. Change tray display with watches presented under glass. Molded of Durez.

make it easy to pick up the pipe, look it over, balance it and return it to the display easily and try another. There's no such problem with gum or cigarettes.

For displays of the counter type having storage facilities, phenolic and urea plastics have lent themselves because of their lifetime durability and compactness. They are particularly adaptable to such items as razor blades, aspirin, chewing gum, etc. Displays must be styled, must be modern, must get your eye—stop you.

All plastics lend themselves to lettering, through cut-out letters, celluloid letters cemented to the surfaces, raised metal or metal inlays, the roll leaf process of printing in gold and silver, or to the usual wiped-in pigment type of lettering.

The designers should determine the type of plastic to use, first, of course, from the angle of the purpose they wish to accomplish. Most designers know that laminated plastics can be bought in various thicknesses and sizes and cut or sawed out to shapes or pieces desired. The cast phenolics are machined or turned to the desired sizes and may be bought in sheets, rods, or tubes. The urea or phenolic plastics are sold in the form of molding compound and must be molded under heat and pressure to their final shapes. Anything that can be engraved in the mold can be reproduced on the plastic piece. Pieces may be of almost any color and have partitions, trays, drawers or doors. They may be one-piece or several. Various surface finishes may be obtained in accordance with the treatment on the mold surface, though the natural finish is an extremely rich, lustrous, satiny surface.

Cost is always an important consideration in displays (as in everything else, these days) and plastic materials have "met the enemy and they are ours." When all the elements surrounding the inception of a display are considered, the great diversity of plastic materials available soon proves to the producer that he has found a supply which gives him a wide range of cost coverage. For ten, for a thousand, for ten thousand; for hand-made, die-cut, machined or molded pieces, the laminated, cast or molding plastics may be called upon to do the job and do it well and economically.

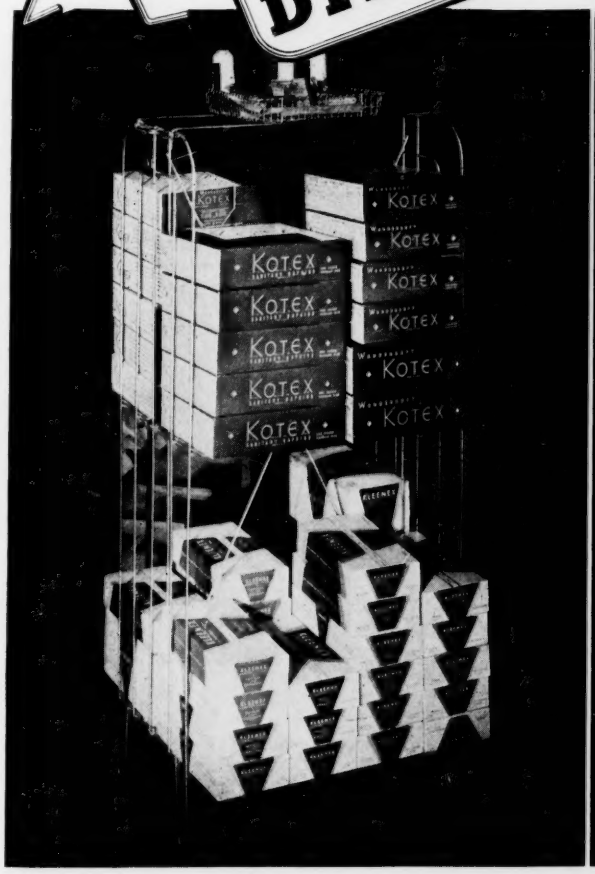


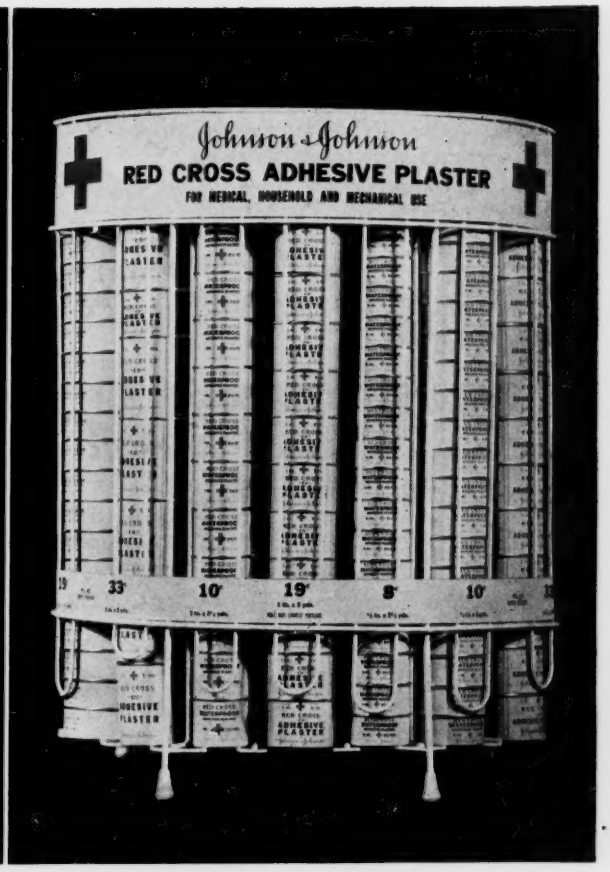
6. A pilfer-proof unit for liquor bottle display. Molded of Bakelite.

XUM



Pave THE WAY for Sales!





Counter, Floor and Sidewalk Types

Bring YOUR product "up front" with an Androck *Wire* Display that *displays* your product *without competing* with it for attention! No matter whether your product is sold in cartons, bags, cellophane wraps, cans, bottles, or in bulk, an Androck *Wire* Display will help increase sales. *Proof?* Write for colorful new illustrated folder showing what we have done for other national and sectional advertisers. Better yet, why not let our prize-winning design engineers start work right now on your specific display problem? Write us today—no obligation, of course.

- ★ MODEST IN COST
- ★ LIGHT-WEIGHT
- ★ FOLD FLAT—SHIP COMPACTLY
- ★ EASY TO SET-UP
- ★ SPEED SALES
- ★ DISPLAY YOUR PRODUCT WITHOUT COMPETING WITH IT!

THE WASHBURN COMPANY, WORCESTER, MASSACHUSETTS • ROCKFORD, ILLINOIS

Associated Companies: Michigan Wire Goods Co., Niles, Michigan; Andrews Wire Works of Canada, Ltd., Watford, Ont.

ANOTHER ANDROCK PRODUCT

CUSTOM-BUILT WIRE DISPLAYS FOR EVERY PURPOSE

WOOD DISPLAYS

by MILTON WEILL*

Wood counter merchandise displays occupy a rather unique position in the display world. They are so constructed as to be of permanent value. The manufacturer who furnishes them to his trade expects more than a temporary place on dealers' counter. He expects the dealer to use the display as a fairly permanent fixture. He knows that a counter display will move his merchandise from a hidden place inside the counter to a strategic at-the-point-of-sale position on top of the counter, right before the consumer's eyes.

Wood counter displays of this type are used three ways: In most cases they are tied up with a merchandising deal. The manufacturer groups together an assortment of merchandise usually including a new product whose introduction he wishes to dramatize. The display is a part of the deal, its cost being included in the price of the deal. Since it is in the retailer's interest to feature the display on his counter, the manufacturer is automatically assured that his products will have the best possible selling position.

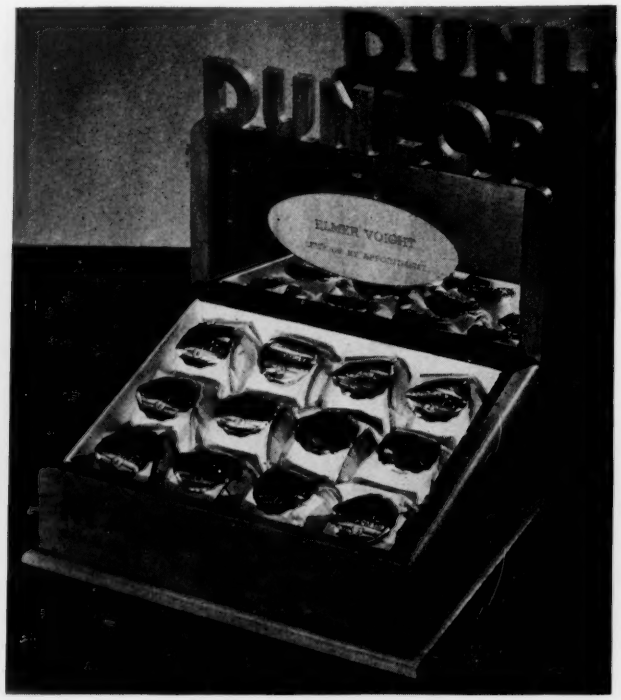
In some cases the display is sent out by the manufacturer to help move merchandise that the dealer has already purchased. In this latter case, there is no tie up with an assortment of merchandise. The display is sent gratis to the dealer, in order to help him sell the manufacturer's merchandise which the dealer had previously purchased.

In other cases the display is used to help introduce a new product. In these instances, the display is sent to the dealer irrespective of the amount of merchandise he buys, so as to insure a prominent position on the counter

* Arrow Manufacturing Co.







Three typical wooden display units showing the versatility of this medium. Note the use of cut-out lettering and the incorporation of glass and mirror work to create unusually finished ensembles. Photos courtesy Arrow Manufacturing Co., Inc.

"THAT'S NEWS!"

Einson-Freeman Displays Make the Newspapers and Newsreels

When a lithographed window display "makes" not only dealers' windows, but the newspapers, the editorial page and the newsreels, it's not only out of the ordinary—it's NEWS.

What is this "publicity-plus" in Einson-Freeman displays that adds a great reader circulation and theater circulation to an already large window circulation? It's

Realism

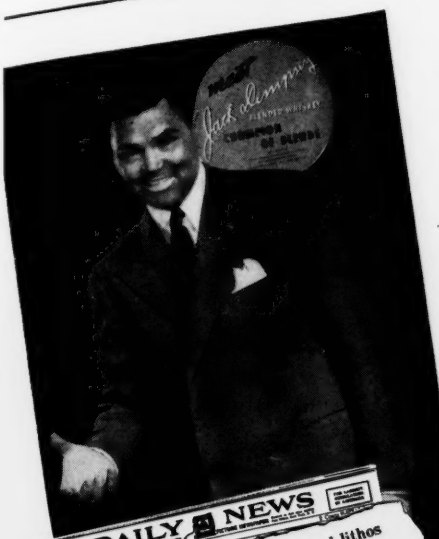
—a completely life-like *projection of a human personality*—made possible by the combination of direct color photography and the exclusive Einson-Freeman "split-spectrum" process of deep-etch lithography.

That's why America's largest circulation newspaper, the New York Daily News, editorially remarked the phenomenon of people taking the Jack Dempsey cutout for the genial "Champ" himself.

That's why the newsreels and newspapers pictured the "coming to life" of the little freckled urchin whose engaging grin is repeated a hundred thousand times in the grocery stores and markets of America.

If you want to endow your 1939 displays with a genuine "headline" personality, just ask an Einson-Freeman executive to tell you what it can mean in actual SALES!

EINSON-FREEMAN CO INC
Lithographers
LONG ISLAND CITY • N Y



All over New England are life-sized lithos of Jack Dempsey advertising his whisky. They are so good they fool you into walking up to shake the outstretched hand.

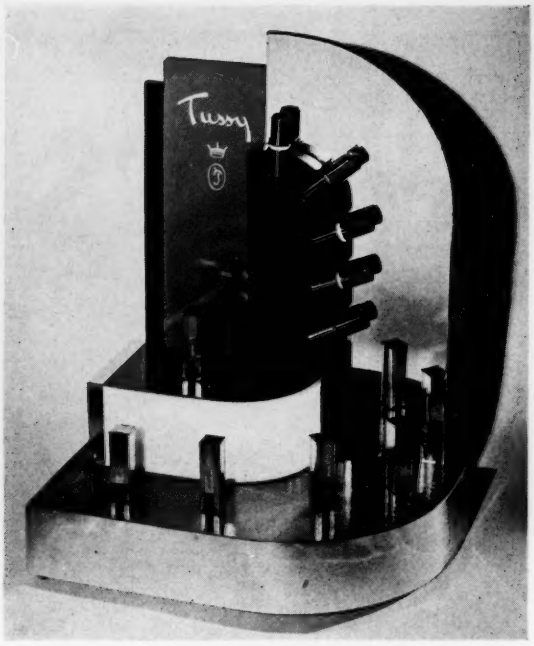


Who's the Most Typical Maine Red-Head Potato Boy?

Gordon Benn, center, of Hodgdon, Me., with flaming red hair and 365,000 freckles (count 'em), was chosen at Presque Isle, Me., over 60 boys in a contest to determine the most typical Maine red-headed potato boy. The lads came from all parts of the state to compete. These boys were selected for the final judging. (International News Photo)



A cut-out wood background forms the upright portion of this jewelry display. Note use of dowel material to simulate a cane.



Sheet metal, painted wood and glass combine to form this stepped display unit. Photos courtesy Arrow Manufacturing Co.

for the introduction of the manufacturer's new item.

In every case wood counter merchandise displays are made up in a style and of materials such as the dealer himself would use, were he ordering the display himself for his own store. Wood is usually combined with glass or mirrors, with chrome, brass or other types of ornamentations added for decorative purposes. Frequently provision is made for illumination either in the form of a steady burning electric light, or a flasher bulb—either provision making for increased effectiveness.

During the past year natural wood finishes have been most popular. It has been found that this type of finish harmonizes best with the average dealer's counter, whether it be drug store, haberdashery shop, specialty shop or department store. Other finishes are of course available—oak, mahogany, and solid colors.

In every case this type of display must be used only for the display of merchandise. It serves no function whatsoever when used by itself, being as its name implies primarily a merchandising unit. It forms a background or setting for the proper presentation of the product. Extra compartments for reserve stock are often provided. An additional advantage of this type of display is that it will remind the dealer to restock when the sale of an item leaves an empty space and makes the display, therefore, less attractive. This reminder forces the retailer to keep a closer check on his stock, thus compelling him to reorder more frequently. The additional orders which he places for merchandise used on the display help the manufacturer further to absorb the original cost.

It is interesting to note that displays that have a novelty appeal because of their seasonable tie-up, or displays that have moving parts which enable the consumer to play with the display, are of definite value in attracting the eye and holding the attention of the prospective customer. The same holds true of displays which enable the consumer to sample a product like powders or perfumes, or displays which have a self-service feature.

It has been found that mirrors on wood displays of this type not only increase attractiveness to the display itself, but really draw the consumer, particularly the female, to the display for the obvious purpose of using the mirror. Once this line of attraction has been established, it is an easy sequence for the looker to become a buyer of the product displayed.

Since wood displays do not involve the use of any special dies, for obviously wood can be cut to almost any shape, there is great flexibility in the type of design that can be created. For the same reason it is not necessary for the manufacturer to place large orders. He can try out the display in smaller quantities.

In recent years the trend has quite naturally been along modern lines, both in design and in the finish to keep in step with modern store interiors.

The advertising message on a wood counter display must necessarily be very brief. Usually the name of the product itself with possibly a listing of the items and prices are all that can be used. This type of trade mark or very brief message can be hot stamped directly on the wood in gold or silver or printed in any color. Very attractive effects may also be obtained by the use of silk-screening.

XUM

Consult Reyburn's For...

SHIPPING AND MERCHANDISE TAGS

Great steamship companies . . . leading department stores . . . noted food manufacturers . . . choose our merchandise and shipping tags. Reason? On these items, too, Reyburn delivers more for the money!



GUMMED LABELS

Design for sales is primary in these labels. But utility, too, governs the choice of stock, of ink, of adhesive. We make millions of labels each year for leading concerns in every industry—your assurance that our prices must be right!



EMBOSSED SEALS

Make your product stand out on the shelf and in the customer's memory by using a Reyburn embossed seal . . . any shape . . . any color . . . any design. Our creative staff is at your service.



DISPLAYS AND DISPLAY MATERIALS

We plan eye-stopping displays, incorporating in them the use of our special Reytrim corrugated display papers, and our fine crepe papers. For color, beauty, convenience and economy there are no equals to these papers. We will willingly develop complete window displays for you.



Reyburn's services and products can help you push sales. Let us go over your needs.

The Reyburn Manufacturing Company

FACTORY, ALLEGHENY AVE. AT 32ND ST., PHILADELPHIA, PA.

WAREHOUSES AND SHOWROOMS

106 SEVENTH AVE., NEW YORK · 1100 SO. WABASH AVE., CHICAGO

SALES OFFICES IN ALL PRINCIPAL CITIES

MOTION AND LIGHTED DISPLAY MECHANISMS

The use of light, motion, and the illusion of motion, either singly or in combination, has long been accepted as a means of increasing the attention value of displays. The exact value added to any display by the inclusion of a motion or light effect cannot be predicted with accuracy. However, recent tests would seem to indicate that this value, while not as great as sometimes claimed, may, in certain instances, rise as high as three or four hundred per cent.

In a recent survey on the subject, tabulated in detail in Table 1, forty-five out of fifty national advertisers (using this type of display extensively) reported that, in their experience, motion displays attract substantially more people than still displays. In another survey, individual instances were cited in which the number stopped by the display in motion exceeded those stopped by the same display when still by from 805 per cent to as high as 2417 per cent.

In another test, conducted at an exhibition held in Detroit, three pairs of displays were used, one of each pair being a motion unit, the other the nearest comparable still unit which could be found. The excess in the number of readers stopped by motion over the group stopped by motionless displays varied from 422 per cent to 2815 per cent.

These tests, however, and all similar claims, must be considered as only partial indicators of the comparative value of motion and light in producing display effectiveness. The average of a much larger sampling of such displays might prove much lower and yet in many instances could probably be depended upon to more than justify use of motion or light displays.

Certain basic considerations may be set down by which a manufacturer may judge the probable effectiveness of such units for his own product or products. He must consider the type of product—whether it will gain or lose by motion display. The copy to be used likewise will affect his choice. The type of store and the class of storekeeper asked to use the unit may induce a selection or rejection of this medium, since motion displays ordinarily require more attention and care than still units. The cost of the mechanism in relation to potential sales in an average outlet may prohibit the choice of motion, since motion devices, while varying greatly in cost according to their elaborateness, all tend to add substantially to the total cost of the display.

Finally, the manufacturer will consider the factors of longer life, repeated use in store after store, transit costs, and packing costs, and the possibility of passing on a portion of costs to the merchant on a deal or share-cost arrangement. The decision, in each case, must be keyed to the special merchandising set-up of the individual firm, although governed by the foregoing basic considerations.

Types of Mechanisms

Various types of standardized motion-producing mechanisms are available, usually being purchased for installation into the display by the lithographer, display builder, or metal-display producer. These include:

CLOCKWORK MOTORS: Low in cost but requiring periodic winding and hence unsuitable for units placed in inaccessible windows or where the dealer cannot be counted upon to show the necessary interest.

TABLE 1

For the purpose of securing concrete data, relative to the sales value and effectiveness of motion, in window display advertising, the RESEARCH DIVISION OF THE UNITED STATES PRINTING AND LITHOGRAPH CO. recently made a survey among fifty outstanding users of point-of-sale advertising.
The following data is based upon information obtained from these concerns:

1. Number of Motion Displays Installed

   Twenty concerns who reported quantities, showed a purchase of 73,132 displays or an average of 3,657 each.

2. Type Display Used

   Of these displays, 42,742 were of the oscillating type, using either the pendulum or spring type motion unit. A large proportion of these were battery operated.
   The percentages below relate to the NUMBER OF CONCERNS reporting—not the NUMBER OF MOTION DISPLAYS used:

Clock Motor	8%	Heat Motor	10%
Electric Motor	17%	Pendulum	20%
Flasher	13%	Turntable	9%
		Vibratory	23%

3. Displays Installed by

Dealers	82%
Sales and Installation Service	18%

4. Did Motion Displays Operate Satisfactorily?

   72% Yes—8% No—20% Fair

5. Did Dealers Co-operate in Using Them Correctly?

   79% Yes—0% No—21% Fair

6. Did Dealers Like Motion Displays?

   88% Yes—8% No—4% Fair

7. Were Motion Displays Shown Only Once in a Dealer's Store?

   62½% Yes—37½% No

8. Were Motion Displays Routed from Store to Store?

   42% Yes—58% No



ADVERTISING METAL DISPLAY CO.

manufacturers and designers

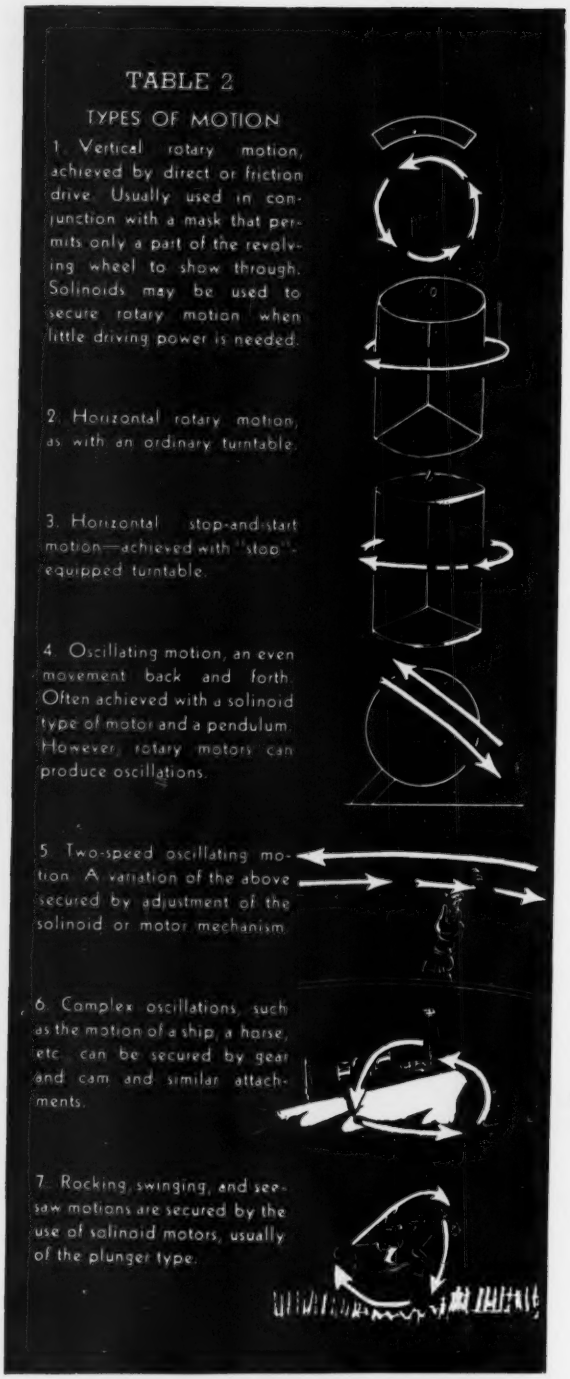
Specializing in the production of Metal Displays, Cabinets and Signs, lithographed, or silk screen processed in baked Dulux outdoor colors

FACTORY & GENERAL OFFICES, 125 N. GREEN ST., CHICAGO—EASTERN BRANCH, 2 E. 23RD ST., NEW YORK CITY

REPRESENTATIVES IN ALL PRINCIPAL CITIES

metal displays for permanency

XUM



ELECTRIC MOTORS: Operated from house current, available in AC, DC, and universal types and in widely varying power and price groups.

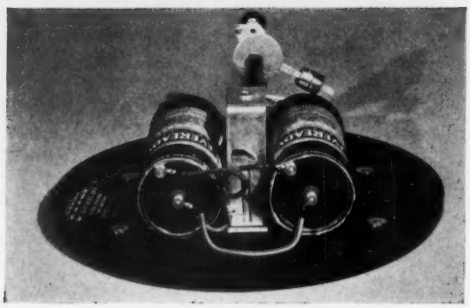
BATTERY MOTORS: Operated from dry cells but otherwise similar to the house-current types. Essential in some isolated areas or for export where voltages, etc., are unknown.

SOLINOID MOTORS: These are simple electrical devices which create a reciprocating motion, and which may be converted into other forms of motion by supplementary mechanisms. They are low in cost and simple to set up and operate. Their sturdiness is an important factor. Both battery and house current types are available. Solinoids are further grouped as "plunger" and "pendulum" types.

FLASHERS: These are devices to cause an intermittent flow of current and thus light one or more bulbs for pre-arranged periods. Types vary from the simplest to extremely complex arrangements for securing elaborate effects.

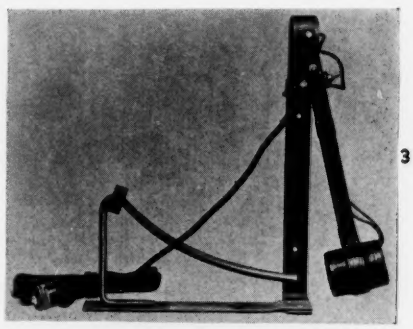
HEAT MOTORS: These achieve motion by the action of rising heat currents, usually from an electric bulb, upon vanes attached to the device. A rotary motion is thus secured in conjunction with light.

1. A battery-driven turntable mechanism. The turntable itself, which has been removed, rests on a pivot inserted into the hole in the center support. Motion is secured through friction-driven mechanism. Photo courtesy of Kay Displays, Inc. **2.** Typical plunger-type solinoid animation unit for AC or DC use. Manufactured by The Reinhold Studio. **3.** Typical pendulum-type solinoid unit producing an oscillating motion. Photo courtesy of Motion Displays, Inc. **4.** Turntable unit operating from house current. Photo courtesy of Motion Displays, Inc.


1



2


3


4

MERCHANDISE MOVES!

Tested Mass Display Method SELLS More Goods

Orpco Mass Display Units are the LAST WORD IN MODERN MERCHANDISING. They are made of strong colored corrugated board and printed in bright colors. Storekeepers welcome them. They **Give Your Package a Chance**, get it out before the buying public. Off the shelves and counters, out onto the floor. Each ORPCO MASS DISPLAY UNIT is designed to fit the product in size, style and color.

YOU WILL BE SURPRISED AT THEIR LOW COST. WRITE FOR FURTHER DETAILS



A&P Display Gets Volume. A&P, leading exponent of mass merchandising, knows that ORPCO Displays move more goods quickly, economically.

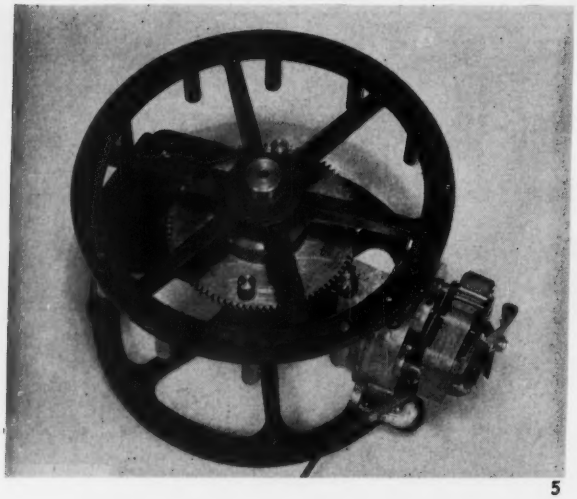
Jergens Cleans Up with Display. This Jergen Stand reminded thousands of women to buy soap—and made Jergens Sales almost automatically.

Rieser Rings the Cash Register. Look what ORPCO Displays produced for Rieser. A stand that made sales easily, quickly — without Clerk Aid.

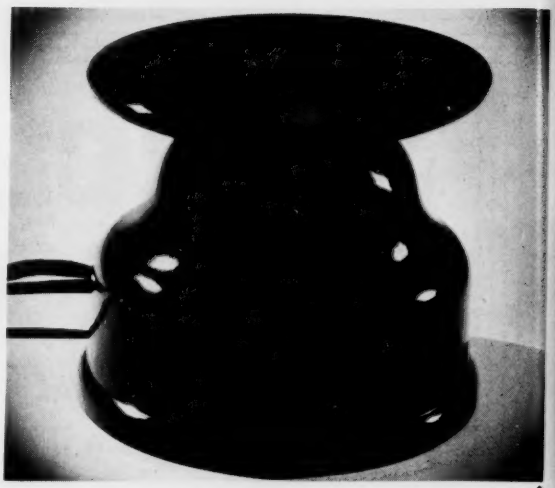
THE OTTAWA RIVER PAPER COMPANY • TOLEDO • OHIO

SALES OFFICES:

55 West 42nd Street, New York, N. Y.
82 West Washington Street, Chicago, Ill.
6970 W. Jefferson Street, Detroit, Mich.
701 North Eutlaw Street, Baltimore, Md.



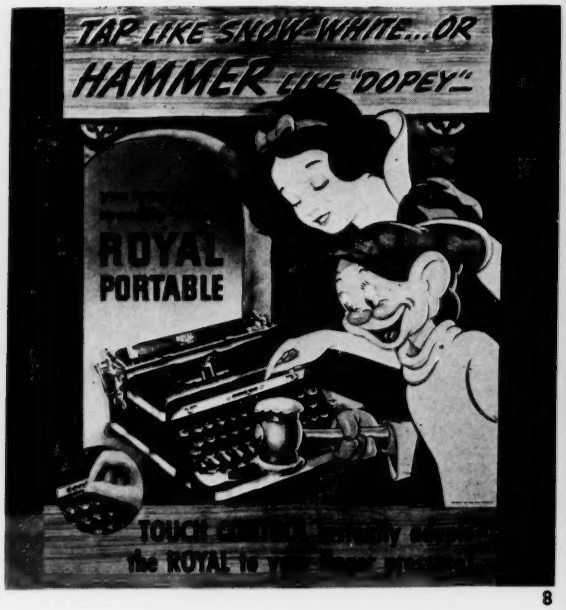
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8

5. Turntable mechanism equipped with removable "stops." The device is so constructed that each of the round bars projecting from the under side of the wheel will stop the table for a desired period of time and then permit the resumption of motion. Removal of any bar eliminates a stop at that particular point, thus permitting a large number of variations of the stopping-starting motion. Manufactured by Andrews and Perillo. **6.** Small turntable with base and revolving platform molded of phenolic plastics. Such a unit may be used in exposed position on counters as well as in windows. **7.** Automatic electric switch devices are used to achieve constantly changing motion on this Parker Pen display., Photo courtesy The Strobridge Lithograph Co. **8.** Motion is here ingeniously tied in with the copy theme of the display. A pendulum type mechanism is utilized. Photo courtesy Einson-Freeman Co., Inc.

Turntables: Either motor driven or activated by clockwork. These can be had in types to support various weights. Some operate at fixed speeds, others are adjustable. Some types use so-called stops to secure an alternating partial revolution with an intervening period at standstill. These stops are adjustable so that the table can be set from three stops per revolution to as many as twelve or even more stops. The number of degrees of motion between stops can be adjusted so that, for example, a half revolution may be followed by two quarter turns.

Vibrators: Either electrically operated (house current or battery) or clockworks types are available when a fast vibratory motion is desired.

The use of simple motion devices does not limit the display planner as to the variations of motion attainable in the finished display. A few of the major variations are illustrated in Table 2.

Design of Motion and Lighted Displays

Makers of motion mechanisms and lighting devices seldom sell directly to the display sponsor. They do,

CHASPEC displays add a third
XUM

CHASPEC displays add a third dimension . . . a new realism and appeal . . . to point-of-sale merchandising.

These displays are permanent . . . designed, embossed, and printed for long term salesmanship. Their color, texture, and mass *project* them into instant attention, raise eyes and fingertips to them.

You yourself have, no doubt, already admired CHASPEC displays in taverns, department stores, restaurants, etc. They appeal to you . . . as they will appeal to *your* buying public.

The materials used comprise cardboard, wood, metal, glass, foil, celluloid and composition. Our processes include printing, stamping, embossing, moulding, laminating, woodworking, silk screening and die-cutting; an enviable combination of manufacturing facilities under one roof.

Whatever your needs . . . whatever your message . . . CHASPEC'S special process of high relief . . . CHASPEC'S 17 years of ingenuity in design and merchandising . . . can create a truly handsome display for your product . . . supplied in any quantity at reasonable cost.

Permit us to assist you in solving your display problems.

CHASPEC
MANUFACTURING CO.,
16 W. 61st Street., New York, N. Y.
Circle 6-3530

however, work closely with both sponsor and display manufacturer—i.e., lithographer, metal-display fabricator, etc.—in adjusting or modifying their devices to secure the desired effect. It is usually best to call in the display manufacturer, who will assume final responsibility for the complete unit, and to work through him. In all cases, a full-size operating dummy should be made and tested under actual operating conditions similar to those to be found in the field.

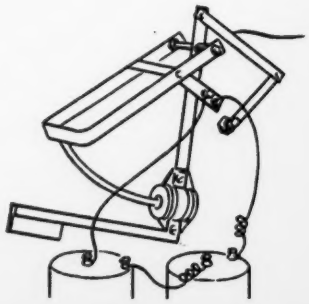
Certain considerations will tend to govern design, apart from those of advertising effectiveness. The cost of the unit as a whole will, of course, affect the choice of motion mechanism. Operating costs will prove important to certain classes of dealers and should be thoroughly checked in advance. In the case of battery-operated displays, advance planning should correlate between the probable period of installation and the life of the battery or batteries under the current-demand conditions imposed by the display. Shipping of mechanized displays always requires more care, more packing, and greater expense than is called for by non-mechanized displays of similar weight, type, and dimensions.

9. Both actions indicated in this diagram of a display produced by U. S. Printing and Lithographing Corp., are secured through a single battery-operated solinoid pendulum mechanism as illustrated in **10. 11.** A lithographed unit which utilizes a turntable, heat motor and flasher mechanism. The dummy bottles revolve around the lighthouse on a battery-driven turntable. Created and produced by the Ivel Corp. **12.** A typical battery-driven turntable installed in a retail store. Designed and manufactured by Kay Displays, Inc. **13.** Two messages, imprinted by differing distances from the center of the revolving disk, are seen through holes cut in the frontal mask of this display. A Speedway motor is used. **14.** A glass cylinder, lighted from below and swung from a small Speedway motor, rotates to give the effect of a streaming faucet.

9



10





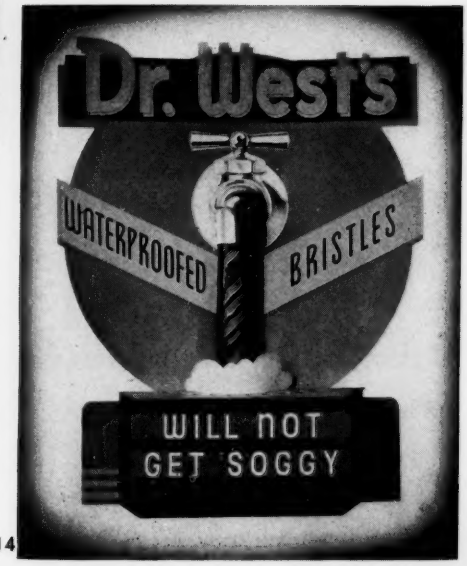
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11



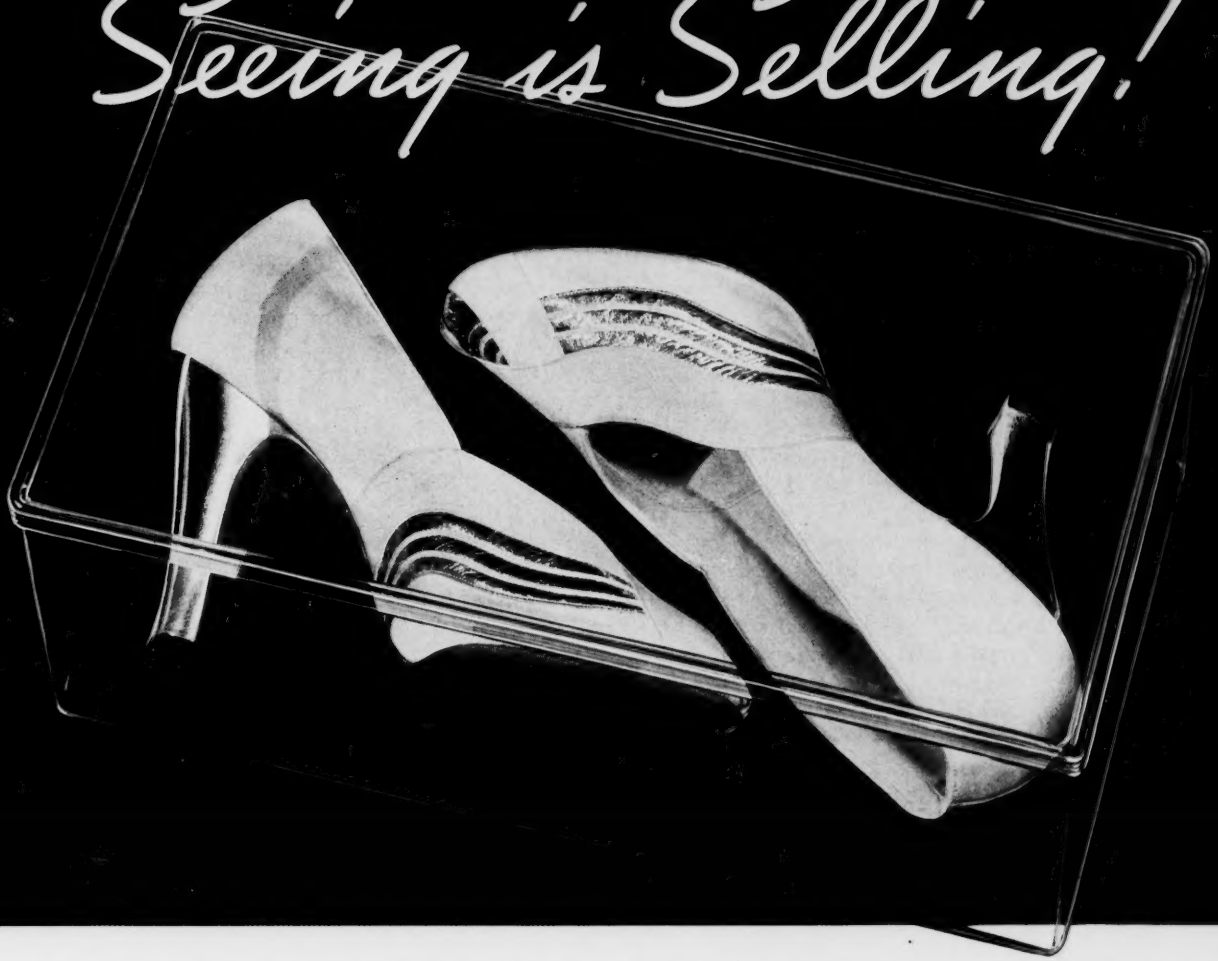
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14

XUM

Seeing is Selling!



Sales step ahead for products packaged in transparent Vue-Pak, Monsanto's light, tough material that makes every container an individual showcase. Even back on store shelves, Vue-Pak'd products are always on display...but merchandise that can be *seen* seldom stays shelved for long.

Vue-Pak Inspires Buying

Alert merchants recognize that a straight look at *your* product is *their* shortest distance to a sale. Quality, style and beauty speak for themselves when exposed to buy-minded shoppers.

Vue-Pak permits customer inspection without losses from markdowns due to shopwear and soiling. Consequently, Vue-Pak'd merchandise gets choice space on counters and in window displays.

Designers and builders of packages and displays find Monsanto Vue-Pak easy and economical to fabricate. There is a size and weight of this rigid, crystal-clear material for every purpose. It can be formed into any practical shape, either in packages wholly of Vue-Pak, or in combination with opaque plastics or other packaging and display materials.

At Your Service — Promptly

Your letter to Monsanto Chemical Company, Plastics Division, Springfield, Massachusetts, will bring information promptly. Or, if you prefer, consult Plastics Division district offices in New York, Chicago, Detroit, St. Louis, Los Angeles and Montreal, Canada.

MONSANTO PLASTICS

PRODUCTS OF MONSANTO CHEMICAL COMPANY



VUE-PAK

TRANSPARENT PACKAGING MATERIAL

TRADE MARK



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DECALCOMANIA FOR DISPLAY

The art of producing decalcomania is so highly skilled and the process so exacting that production speeds are relatively slow; particularly when compared with modern high-speed printing and lithography. Thus, for most purposes, the use of decalcomania would be prohibitive in cost; particularly when the package or display is intended for only a short life.

However, when extreme durability of color (particularly when under adverse conditions) is of major importance, no method of decoration offers the advantages of the decalcomania process. Decalcomania transfers enable the reproduction of advertising messages upon glass, metal, wood, etc., a proceeding which would be uneconomical if painted by hand. Even where hand painting might be considered as an alternative, the lower cost of decalcomania gives it an advantage not easily out-balanced, and, as in the case of truck decoration, the speed with which the decalcomania may be applied serves to provide a further cost saving over any other type of decoration, which has induced its almost universal use in this field. In every one of the instances cited—and all those others in which decalcomania transfers are used, there is an element of permanence—not merely permanence, but permanence plus excellent appearance—which plays an important part in inducing the choice of this unique process.

Decalcomania designs are printed either "face-up" (positive) or "face-down" (negative). On "face-up" transfers a solid coating of heavy white is first printed on the gummed paper. This is repeated through several impressions until a backing has been deposited on the decalcomania thick enough to insure a sturdy support for the actual design. Each one of the individual printings must be thoroughly dry before the next impression is put on, thus accounting for one of the main cost factors in decalcomania preparation.

Designs of the negative or "face-down" type are, naturally, printed in reverse order, the visible colors being printed first followed by the backing colors. Today, more and more transfers are of the "positive" type as the transfer into final position is quicker, and hence less expensive by this method. However, when open letter transfers are required—i.e., designs with large open or transparent spaces—the "negative" type must be used, since otherwise the letters would break apart and move out of position without the underlying varnish coat to hold them together.

So, too, must consideration of the time element induce comparisons, not with printing and lithography, but with the slower hand decorative processes. Thus, it takes—usually—twice to three times as long to produce a decalcomania as it does to make an ordinary lithograph. But, the application time of a decalcomania is far less than that required with hand painting. Consider, for instance, the problem of tying up a ten-ton truck or a store's windows for the several days required for a painting job, as compared with the few hours requisite when decals are applied. Thus any process, even approaching decals in durability and beauty, involves far more time and expense in application whereas less costly processes offer compensatingly less in effect and in durability.

One of the longest exploited fields and the one most thoroughly dominated by decalcomania is that of window and door display. Here, for generations, large advertisers have captured valuable permanent display billboards by the use of so-called "cooperative" decalcomanias. Perhaps the most familiar of all are those used by Ex-Lax and Coca-Cola but hundreds of firms, in almost every field, use this advertising medium. The decals here are of three types. The central figures feature the trademark, slogan or package of the sponsor. Additional but subordinate side panels feature the services or products available in the store, while a third class of panels are merely decorative and serve to fill the spaces between the other two kinds to form a continuous window valance. It is through the use of these decorative panels—so designed that they may be cut and used in any desired length—that the decal valance is adjusted to the varying sizes of store windows.

For eye-level position on doors or windows, smaller signs are made, usually featuring only the one product or line of the sign's sponsor. Although, even here, there seems to be a growing tendency towards the "cooperative" decal which either features other items sold in the store or carries some "good-will" slogan such as, "Thank you—call again." Another type is made with two faces, one to be seen through the glass of a door and the other seen from inside Here the cooperative message is usually printed on the inner face and the sponsored advertising on the outer, although manufacturers often use the inner face as a purchase reminder for staple items.

In recent years, to a growing extent, the decalcomania has been moving *inside* the store where it is used on walls, counters and other fixtures to identify various departments—usually on a "cooperative" basis. The use of decal decorations on permanent and semi-permanent displays has likewise shown some growth, although here competition is keen from such other processes as printing, lithography, silk screening, die-stamping and embossing.

A more recent development has been that of applying small decals to packages as labels. Here advantage is usually taken of the transparency of the lacquer backing attainable in a decal, permitting the application of delicate lettering—in multi-color effects—without obscuring the color of the package or product below. The



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Modernistic Displays

THAT FEATURE AND COMPLIMENT YOUR PRODUCT

•

WIRE • SHEET METAL • MASONITE
FABRICATED MATERIALS

CREATORS • DESIGNERS • MANUFACTURERS

UNION STEEL PRODUCTS CO.

ALBION, MICH.

WRITE FOR POINT-OF-SALE DISPLAY SUGGESTIONS FOR YOUR PRODUCTS

Dept. M

•

product shows through the label as well as the glass. There is also a growing application for containers designed for long and heavy use or those in which the spilling of the contents might damage an ordinary label or stain the paper on which it is printed.

Glossary of Decalcomania Terms

BACKING PAPER: The paper on which a decal is printed and from which it is transferred to the surface (glass, wood, metal, etc.) on which it takes permanent position.

CERAMIC DECALS: A special type for application to glass or porcelain. Instead of oil colors mineral pigments are used. Transfer is fused onto surface by firing at from 1000 deg to 1650 deg. Absolutely permanent, but little used for display or package purposes. (See Push-Plates)

COATING: The gummed surface which is applied to the backing paper before printing and which softens on immersion in water to permit the transfer to part from the backing.

COOPERATIVE: Any sign or display advertising both the product of the sponsoring manufacturer and the merchandise or services of the store permitting its use. In decals or transparencies, these are usually made in separate units which are assembled as space permits.

DOUBLE PRINTED TRANSFER, DOUBLE PRINTED TRANSPARENCY: A type printed with two messages separated by an opaque coat or coats of ink or "paint," thus affording a sign that can be read from both sides of a glass surface. Message and illustration may vary.

DUPLEX PAPER: A heavy backing paper to which is laminated a very high grade of thin or tissue paper on which, in turn, is coated the decal solution. The heavy paper gives support to the tissue sheet when it goes through the press and in placing the design in proper position on the object.

ENGRADEL: Trademark name of transparent label produced by Palm, Fechteler & Company. Not a decal or transfer but printed on cellulose and hence transparent when applied as a label.

FACE-DOWN: Connotes negative transfers.

FACE-UP: Term used for positive transfers.

FILLER PANELS: Decorative panels so designed that they can be cut down to connect two or more display panels or a display panel with the end of a window.

FLAT-BED PRESS: The type of press most frequently used for decal production. The bed contains the printing stone and moves back and forth in reciprocating motion to contact the sheets which are fed over a cylinder. (See Stone; Rotary Press)

LOAD-PULLERS: Term applied to press-workers who take sheets as they leave the press and place them in the racks. More skilled than it sounds.

NAME-PLATES: Small decals for use on permanent displays and in other positions requiring identification.

NEGATIVE TRANSFERS: A type in which the design is reversed (seen as type in a mirror). Particularly used for open letter work where the transparent lacquer coat (put on last) holds the letters in place.

OPACITIES: Similar to transparencies but opaque and with message on two sides.

POSITIVE TRANSFER: A type in which the top of the design is exposed (i. e., reads like printing when still on the backing paper). Usually applied to back face of glass and seen through the glass.

PUSH PLATES: Ceramic decals (see above) are sometimes fused onto porcelain enamel to form permanent signs where great wear is expected.

RACKS: Wood frames holding chicken wire onto which the sheets are put as they leave the press. When stacked, these prevent damage to the delicate undried coating and permit air circulation to hasten drying.

REGISTRATION: The process of differently colored parts of a design in their correct positions. Always a printing problem, this is more than ever so in decal work, where a single "off-register" may ruin thirty previous printings on a sheet.

ROTARY PRESS: A modern type of press having a higher speed than the older flat-bed press, used by at least one company for certain types of work.

SIMPLEX PAPER: An absorbent paper stock, specially made for decalcomania use and coated with the decalcomania solution.

SLIDE-OFF TRANSFERS: Principally used for name-plates, these positive transfers literally slide off the backing paper onto the product or display when moistened.

SQUEEGEE: Rubber roller used to force contact between transfer or transparency and surface to which it is applied and to eliminate air-pockets.

STONE: Most decal lithography uses the original lithographic stone method. The stone is so treated as to accept ink in desired places and reject it in all others. After use, the stone is shaved clean and built up to the proper height from below, usually with slate sheets, permitting re-use many times over with different designs.

TRANSPARENCY: A sign affixed to window or other glass, printed on paper—the paper remaining as part of the permanent sign. Usually printed on both sides for double visibility both inside and outside of store. Contrasts with decalcomania which is a film *transferred from* paper backing onto glass or other material.

TRUCK TRANSFERS: Decals designed for application to truck bodies—usually used by fleet owners or by retailers to advertise an agency for a nationally known product.

VALANCE SIGN: A sign, either painted or of decalcomania applied to the entire top portion of a window.

VARNISH-APPLIED TRANSFERS: A type for use on outdoor installations, trucks, trailers, etc., applied by coating transfer with thin coat of transfer cement before placing on surface to be decorated.

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SECTION TEN

MACHINERY AND SUPPLIES

Pages 347 to 485

ARRANGEMENT OF EQUIPMENT

CONVEYORS

WEIGHING AND FILLING DRY PRODUCTS

CHECK-WEIGHING SCALES

BOTTLE CLEANING EQUIPMENT

FILLING LIQUID PRODUCTS

CAPPING EQUIPMENT

LABELING MACHINES

AUTOMATIC (LOOSE) WRAPPING EQUIPMENT

SEMI-AUTOMATIC WRAPPING EQUIPMENT

TIGHT-WRAPPING EQUIPMENT

CARTONING EQUIPMENT

COLLAPSIBLE TUBE FILLING

BAG PACKAGING

STAPLING EQUIPMENT

CASE PACKING AND SEALING EQUIPMENT

ADHESIVES

SET-UP PAPER BOX MAKING MACHINERY

FOLDING BOX MAKING MACHINERY

FIBRE CAN MAKING MACHINERY

ARRANGEMENT OF EQUIPMENT

The ease, speed, and economies of modern packaging methods are largely influenced by the proper placement of equipment in the packaging plant. They represent a careful synchronization between the finished products, ready to be packed, a wide variety of materials used in the packaging operations, and the available equipment—all working together so that there may be a natural and progressive flow of products from the very first manufacturing operations to the final shipping.

With the wide variations that exist, such as space available, the physical nature of the product, kinds, sizes and shapes of containers, and fluctuations in quantities, it is obviously impossible to lay down set rules which will apply in all cases. Packaging operations in one plant, for example, may be strictly confined to the packaging of a single product, such as soap flakes, in a standard size unit, utilizing a folding carton, or they may include the complications of the distiller who distributes his products in twenty or more states, each of which has its own requirements as to special labeling or packaging, which must be rigidly adhered to in order to avoid severe penalties or revocation of his operating license, involving over a hundred trade brands, packed in various sizes, in almost four hundred different individual packages, and requiring the efficient and speedy handling of orders for as many as eight thousand units in a single day's production.

Each machine set-up is bound to have its own peculiarities and specific difficulties which, while largely overcome by the manufacturer of the machinery before it is shipped to the customer, does not free the plant owner from responsibility in the location of the machines, or paying attention to matters of detail. In general there must be a scientific orderliness about the line up of the packaging machinery, all equipment being placed to produce maximum performance, under the particular and peculiar conditions in which it is used.

Having determined upon the actual packaging method to be used—whether it shall be entirely automatic or a combination of mechanical and manual operations—it is of the utmost importance to place the equipment advantageously in the plant, with particular attention paid to the product supply as well as the shipping department. Customary practice is to avoid as far as possible having all manufacturing, packaging and shipping operations on a single floor, it being found more economical and advantageous to segregate manufacturing operations to one floor, packaging to another and shipping to another, so that advantage may be taken of gravity flow production.

Most manufacturers have found that straight line production is the fastest, simplest, and most satisfactory in packaging operations. However, when space is not available, it is entirely possible to group the equipment in progressive stages, so that by means of conveying equipment, the packaging line is kept efficiently moving in one general direction. Obviously if part of the packaging work is done manually it is essential to provide adequate room in which the operators may work; whereas with fully automatic operations, floor space is conserved, it only being necessary to provide enough space to permit the regular inspection and adjustment of the machines whenever required.

While most packaging machinery is permanently located there are cases where it is necessary to provide for versatility and portability. Particularly is this true with manufacturers who vary their operations with the seasons, making and packaging one product during the cold months with a decidedly different one in the summer months. In this case it necessitates having equipment which is portable, so that it is possible to set up a temporary filling, labeling, or wrapping line at any convenient point, avoiding extra handling, assuring quantity production, and maintaining a well-trained group of operators, shifted from one job to another.

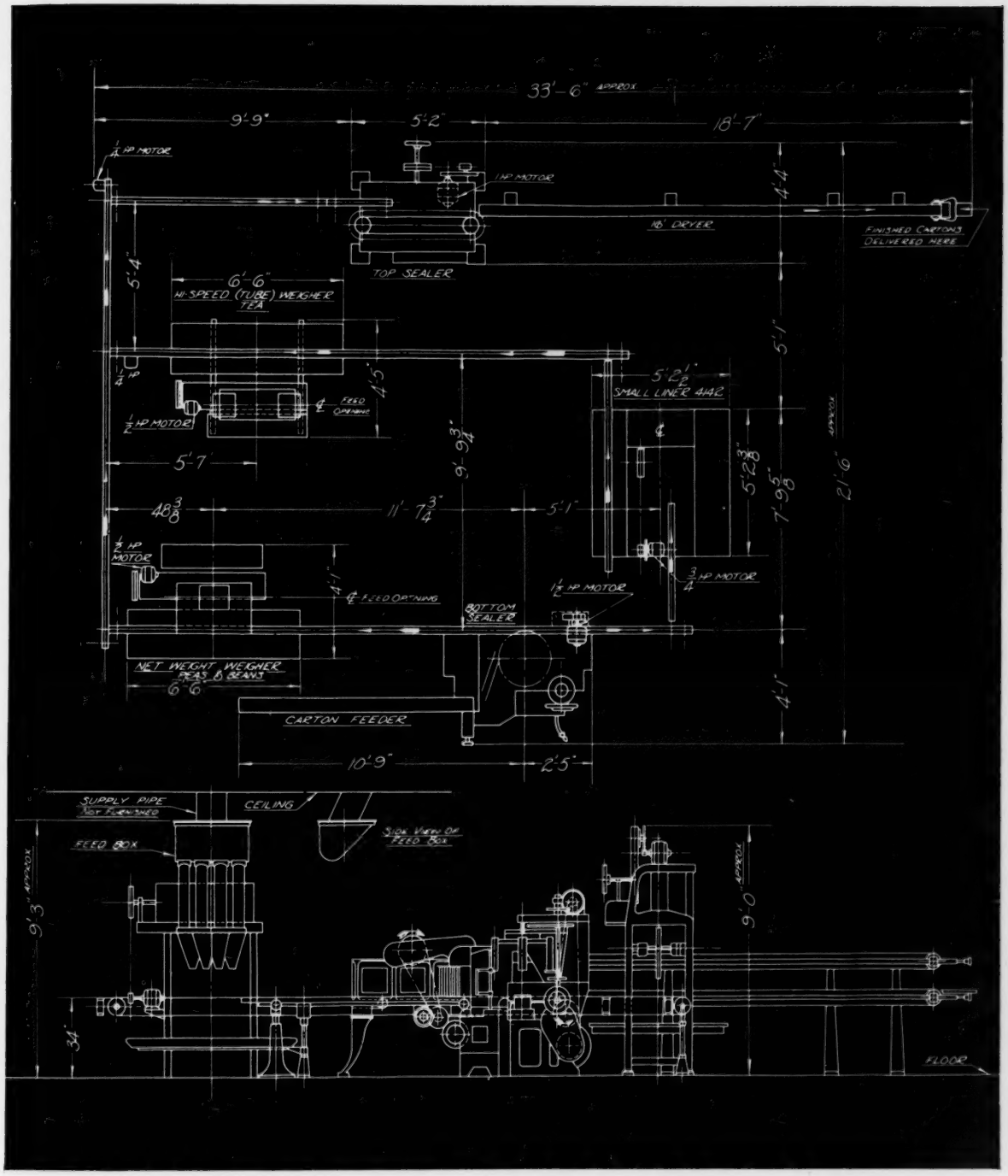
Floor areas and, to a considerable degree, wall space, should be efficiently utilized in the placement of the package production units as well as the conveying and motivating equipment, although in the case of the latter—particularly with modern machines—integral motors rather than belt drives are supplied.

The storage of materials and supplies used in the various packaging operations, while formerly—under low-speed operating conditions—was of slight importance, merits careful consideration today. Cans, bottles, and other types of pre-formed containers are usually supplied direct from main storage points, being carried on individual conveyors or those which serve the dual purpose of bringing such supplies to the assembly units and removing the completed packages. In either case it is necessary to make due allowance for such conveying systems in the planning of space and placement, obviating wherever possible any unnecessary travel or inefficient use of power.

In brief, the rules which apply in any efficient manufacturing plant should be followed in the placement of packaging equipment. On the four pages following are shown several typical floor plans, with the dimensions given in each instance.

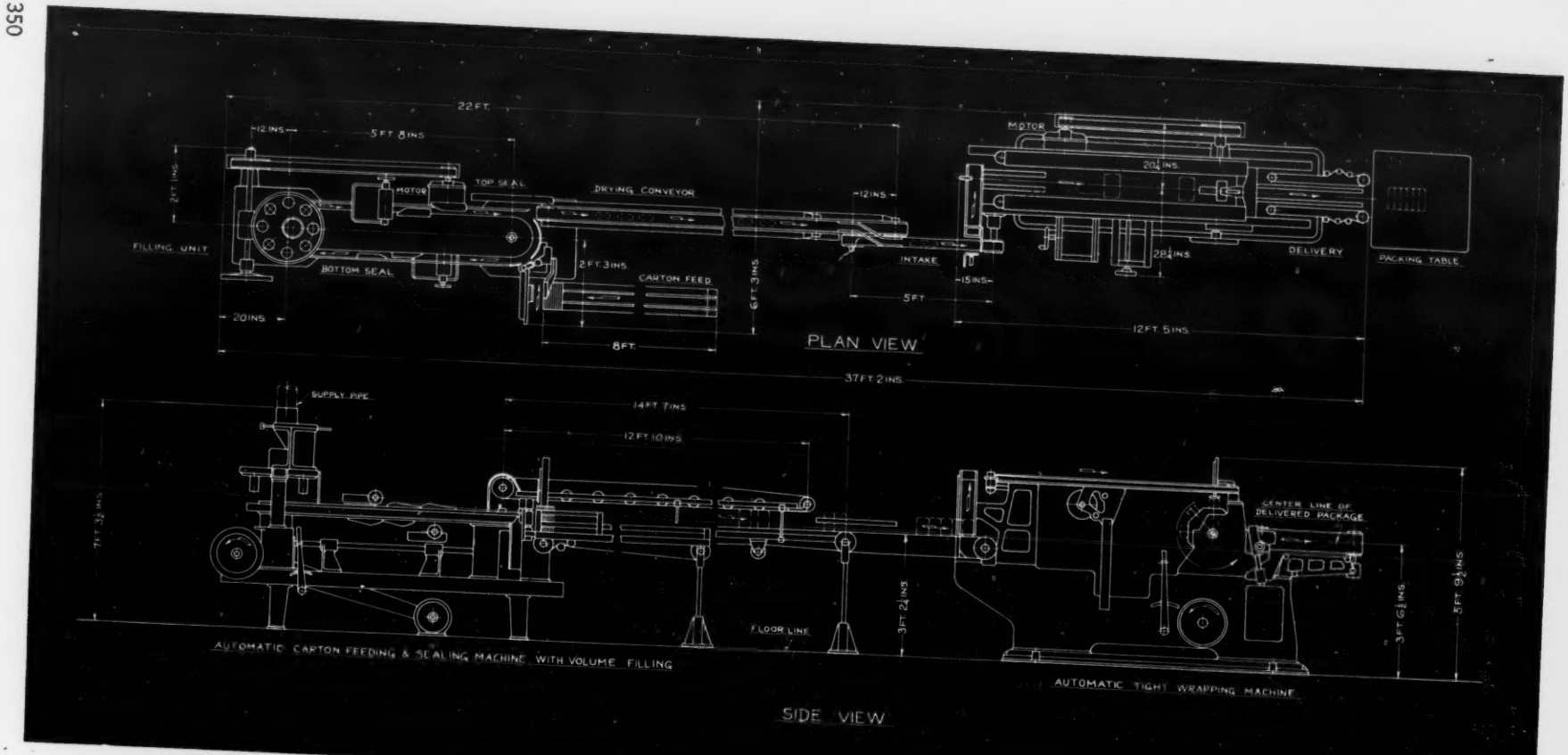
Many manufacturers permit visitors to study the placement of packaging equipment in their plants. Likewise the facilities of engineering services of the various machine manufacturers can be of inestimable help in planning the placement so that there will be no delays or uncalled-for extra handling, and so that efficient production may be maintained to full capacity.

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Floor plan and elevation diagrams of packaging equipment used on two different types of products; i.e., those requiring lined as well as unlined cartons. The carton blanks for both are supplied to the bottom sealer (see lower center of floor plan) and, after forming and bottom sealing, the cartons to be used proceed by belt to a net weigher. Properly filled, these are then conveyed to the top sealer for closing and, after passing through the dryer, are delivered to the packing table for placement in the shipping containers. This line, as stated on the floor plan, is used for the packaging of peas and beans or other similar products for which net weighing is suitable. Cartons which are to be lined, after being bottom sealed, are conveyed to the lining unit and from there proceed to a high-speed (tube) weigher. The filled cartons then join the main line of travel to the top sealer; from that point being delivered by belt to the packing table. Courtesy of Pneumatic Scale Corporation, Ltd.

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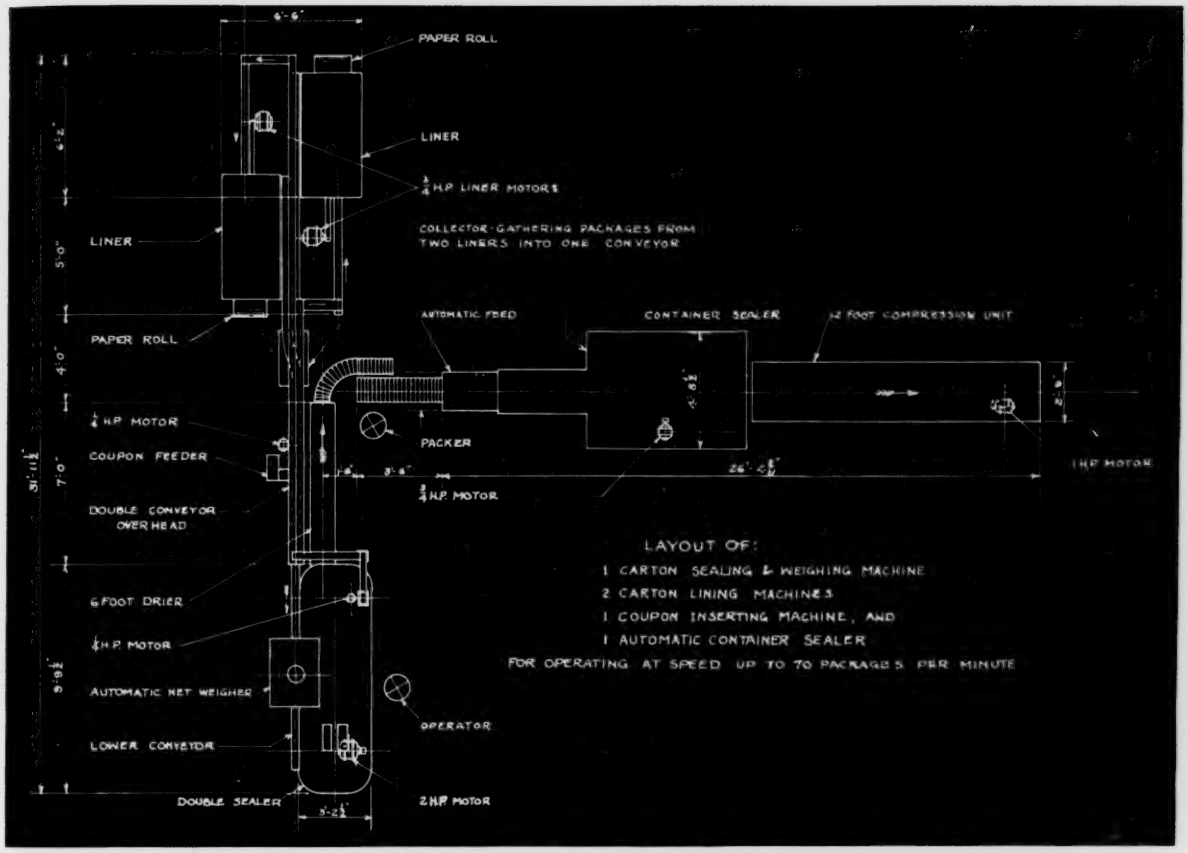
Shown above in floor and elevation plans is a complete packaging line which includes an automatic carton filling and sealing machine in combination with an automatic tight-wrapping machine. This line would automatically feed the cartons from a supply, bottom seal them and fill them with the desired amount of material, filling through special adjustable measuring flasks arranged in a turret mechanism, particularly suited for free flowing products such as salt, sugar, soap powders, etc. After filling, the cartons are automatically top sealed and carried on a conveyor into the tight-wrapping machine where they are automatically tight-wrapped with the printed label and discharged ready for packing in the shipping containers.

If a regular printed carton is used and not tight-wrapped then the same carton filling and sealing machine would be used without the tight-wrapping machine. This complete line has a production up to 60 to 70 complete packages per minute. The machines are made in various styles and sizes and are changeable or adjustable within certain limits. This drawing has been furnished through the courtesy of Stokes & Smith Company.

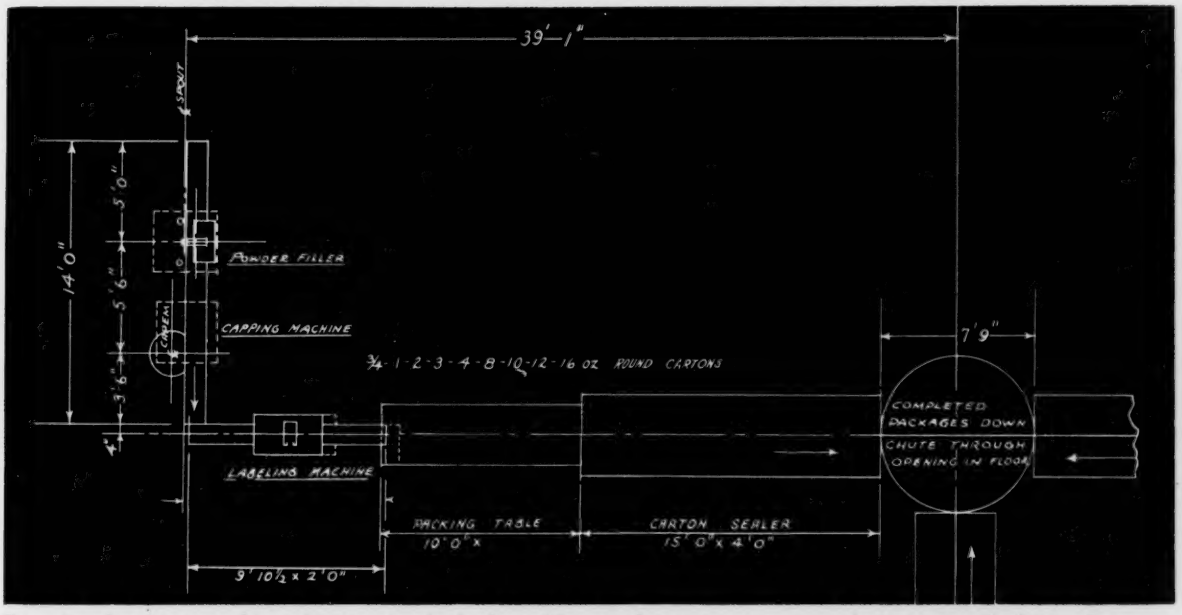
As may be seen, this plan assumes that ample room—an overall length of 51 ft.—is permitted. However, if less space in one direction is desired, it is possible to regroup similar equipment through a rearrangement of the conveying units. There are, of course, certain advantages to be gained in longer lines of travel, particularly between units which perform sealing or gluing operations and where a longer time for drying is found to be actually advisable.

It should also be pointed out that packaging equipment should be placed advantageously in the plant, with relation to the product supply as well as to the shipping department. Customary practice, when all operations are not confined to one floor, is to segregate packaging on one floor situated between the products and shipping departments so that advantage may be taken of gravity flow production rather than to employ elevating equipment.

With very few exceptions, users of packaging equipment are not unwilling to permit visitors in their plants for the purpose of studying the placement of equipment. In addition to this source of information, the prospective user can always consult with his machinery manufacturers.

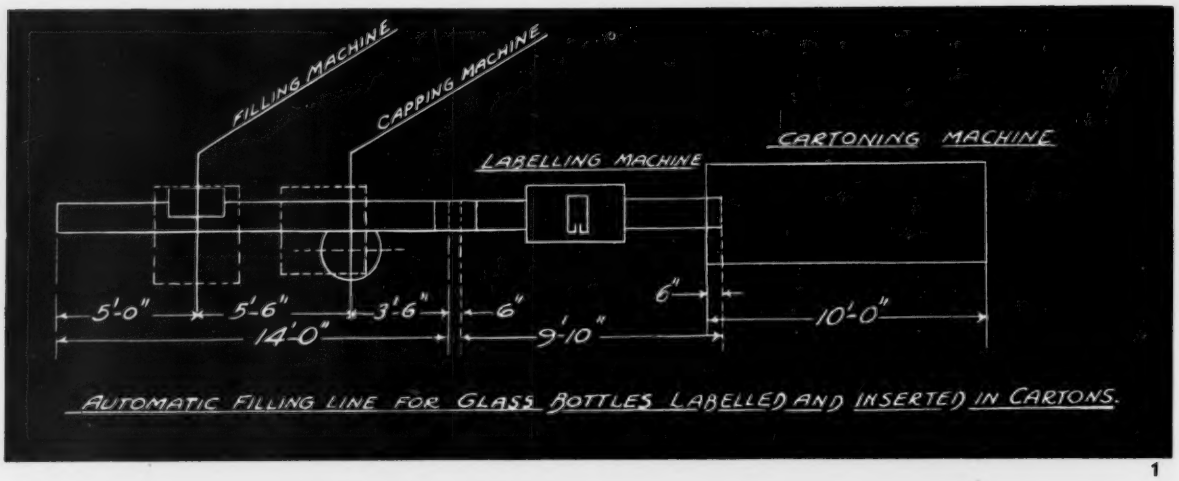


Plan of automatic line consisting of carton sealing and weighing units, lining machines, coupon inserting machine and shipping container sealer. Two operators—other than those required to furnish material—are needed, and up to 70 packages per minute may be produced. By a series of conveyors the formed cartons are fed to the lining machines, thence to the filling unit and, before final sealing, a coupon is inserted in each package. This arrangement permits economical use of floor space. In this arrangement adequate provision is made for the transportation and constant supply of all materials to the points where they are utilized. It is to be noted that each unit is driven by an individual motor, thus making it possible to shut off one without affecting the others. Courtesy of J. L. Ferguson Company

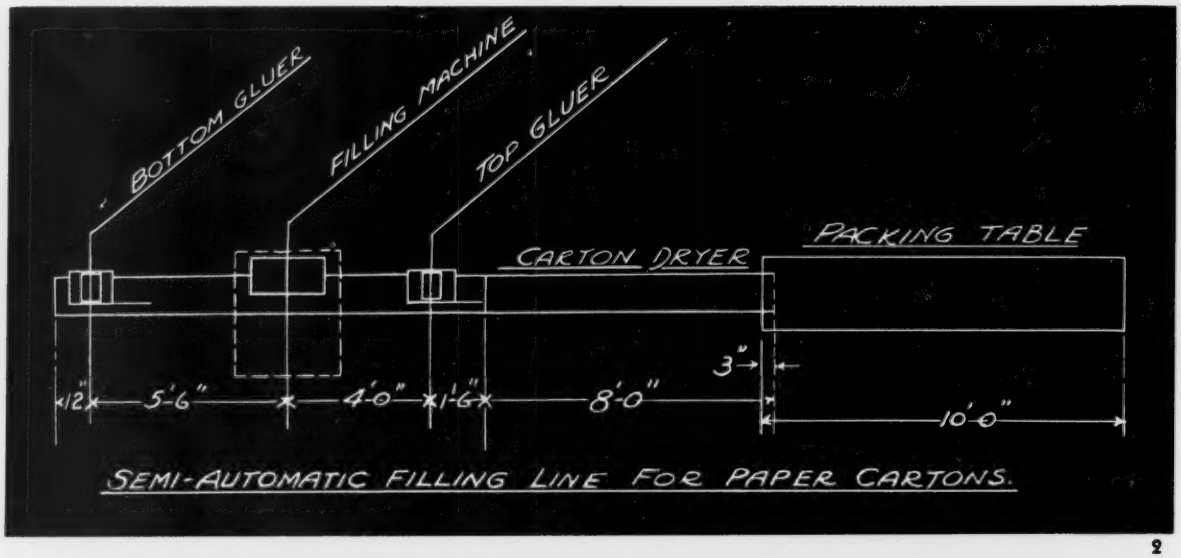


Floor plan of equipment used in packaging various kinds of material in round paper cartons or cans. In this instance the diagram shows one of the three units, the production from which terminates in a conveyor chute that is common to all. Here the operation consists of filling, in which a weighed or measured amount of the product is placed in the containers; these then move by belt to the capping machine where slip or other type covers are placed on each; automatic labeling follows, and then the finished packages are placed in shipping cases which are sealed automatically and conveyed to the chute. Courtesy, J. L. Ferguson Company

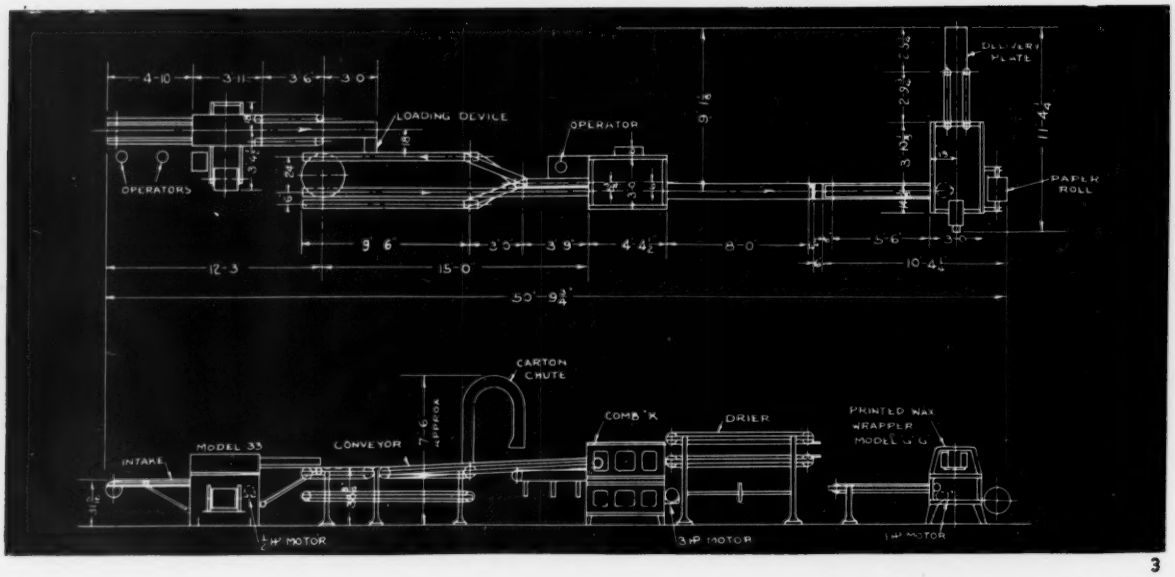
XUM


FILLING MACHINE
CAPPING MACHINE
LABELLING MACHINE
CARTONING MACHINE
5'-0"
5'-6"
3'-6"
6"
14'-0"
9'-10"
6"
10'-0"
AUTOMATIC FILLING LINE FOR GLASS BOTTLES LABELLED AND INSERTED IN CARTONS.

1


BOTTOM GLUER
FILLING MACHINE
TOP GLUER
CARTON DRYER
PACKING TABLE
12"
5'-6"
4'-0"
1'-6"
8'-0"
3"
10'-0"
SEMI-AUTOMATIC FILLING LINE FOR PAPER CARTONS.

2


LOADING DEVICE
OPERATOR
OPERATORS
PAPER ROLL
CARTON CHUTE
COMB'R
DRIER
PRINTED WAX WRAPPER MODEL G G
INTAKE
MODEL 33
CONVEYOR
3HP MOTOR
1HP MOTOR

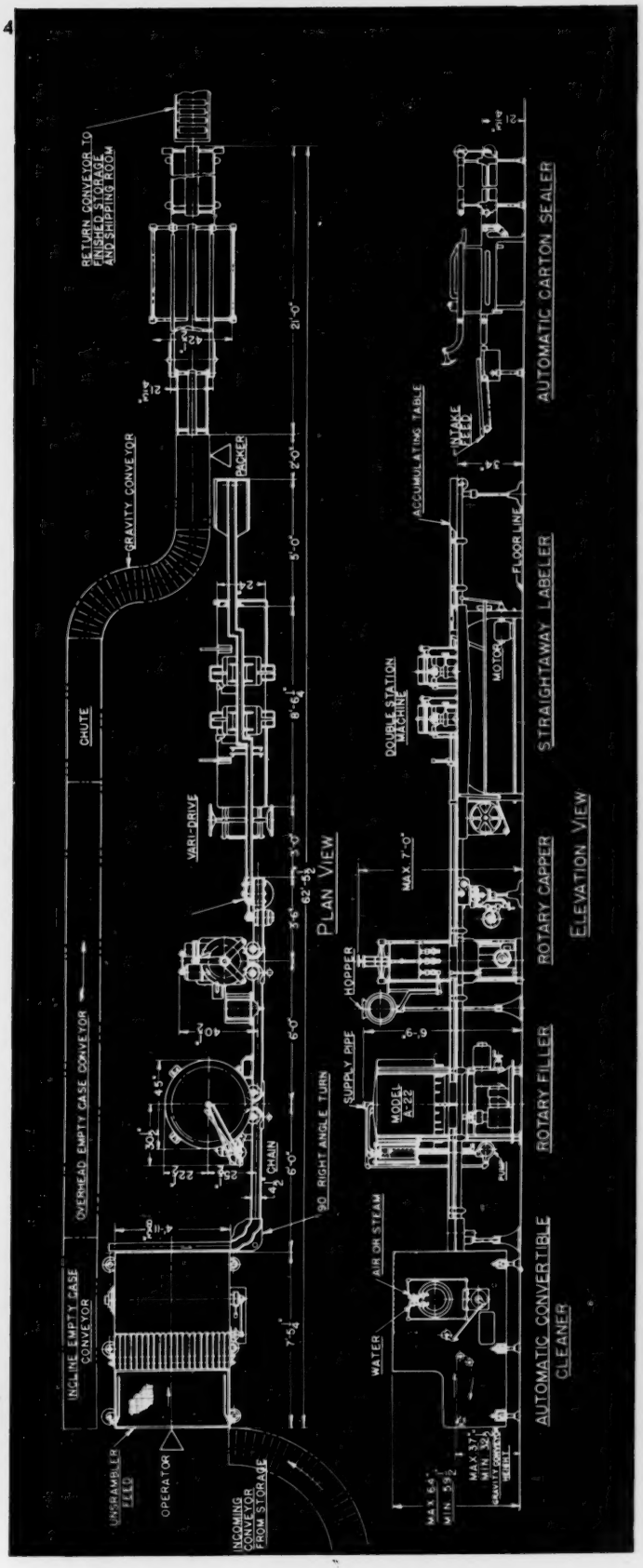
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1. Floor plan showing typical equipment installation of automatic filling, capping, labeling and cartoning units as arranged for liquid products. In most liquid packaging lines, however, special equipment for washing, sterilizing and drying of bottles directly precedes the packaging units shown in this diagram. Subsequent operations include the packing of the finished cartons, or bottles if cartoning is not done, in shipping cases which may be sealed by hand or in automatic machines. Courtesy of Consolidated Packaging Machinery Corporation

2. Floor plan showing typical installation of semi-automatic equipment for ordinary carton filling and sealing. In this case the cartons are set up by hand and placed in the bottom sealer unit and are handled automatically through the filling machine and top sealer. Reaching the packing table they are packed by hand in shipping containers. Because part of the work must be done manually, it is essential to provide adequate room in which the operators may work. Ordinarily this simple equipment is arranged in a straight line although it may be varied if placed in a confined area. Courtesy, Consolidated Packaging Machinery Corporation

3. In this layout, the wrapping machine takes twelve biscuits in a loose group, assembles and wraps them in waxed paper, sealing the sides and bottom, and delivers the biscuits to a carton loader attachment automatically. The carton loader attachment previously has received bottom sealed cartons from the combination top and bottom sealing machines and then the carton loader attachment automatically inserts one of the groups of twelve biscuits, wrapped in waxed paper, into the carton. After loading, the carton is turned upright and carried back into the combination top and bottom sealing machine, where the tops of the cartons are sealed, then passes through the dryer where the glue is dried. The carton then passes into the wrapping machine where a printed waxed paper wrap is cut off from the roll, through the use of the photo-electric cell, registered around the package, folded and sealed on the machine. The speed of the wrapping machine is 30 to 45 wrapped units of twelve per minute, the combination bottom and top sealing machine operating at a similar speed as does the wax wrapping machine. All of these operations are performed with the use of only the one operator, who feeds the knock-down cartons to the combination top and bottom sealing machine for bottom sealing, after which all the operations of loading the wrapped biscuits into the carton, laying the carton back into the top sealer, top sealing and wax wrapping, are handled completely automatically. Courtesy of Johnson Automatic Sealer Company, Ltd.

4. Floor and sectional plan showing a set-up for automatically handling containers (liquid products) which are shipped in re-shipper cases. The incoming conveyor brings the cases from storage; an operator inverts them on the unscrambler feed where they are automatically loaded to the cleaner. The cleaner automatically discharges to the short right angle section of the feed conveyor and the containers feed around the 90 deg. angle turn into the filler feed. The operator feeding the convertible cleaner throws the empty case on the inclined empty case conveyor. The shipping case then continues on an overhead conveyor to the discharge of the labeling machine where it meets the finished product. The containers (bottles) continue from the washer through the rotary vacuum filler, through an automatic 8-head rotary capper and are transferred from the discharge of this unit to the food conveyor of the straightline labeler. After the containers are properly labeled they feed to the accumulating table at the discharge of the labeler, where the packer inserts them in the empty cartons and starts them through the automatic case sealing equipment. The latter unit folds and glues the flaps and seals them, discharging to gravity conveyor system which will convey the finished product to the shipping room or to the finished package storage warehouse. Courtesy of U. S. Bottlers Machinery Company.



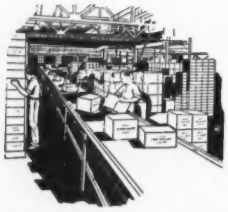
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CONVEYORS

by W. J. RAMSEY*

When the application of materials handling equipment is being considered, whether the commodity to be conveyed is in cartons, boxes, glass or metal containers, or what not, it should be remembered that there is one definite type of conveyor, or combination of types, that will best serve in each particular case. It may be belt or roller conveyors, it may be pallet or live roller conveyors. In fact, it may be one or more of a number of different types set up in combination to do a certain job well. The conveyors applied depend entirely upon the job to be done, the conditions to be met.

Frequently arising are problems in handling which cannot be practically solved by applying the more common floor types of conveyors. It may be that floor space cannot be sacrificed to accommodate equipment of this type, or the commodity to be handled may be of such size and nature that it cannot be practically conveyed on floor units. Any number of such situations arise and are usually met with the application of chain trolley conveyors.



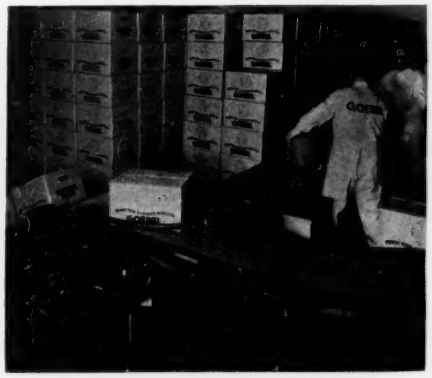
Belt Conveyors

The belt conveyor is perhaps the most versatile type, capable of innumerable applications. It can be level, inclined or declined; it can be reversible; it can be set at working height on the floor, or be suspended from the ceiling, out of the way of other activities; it can be stationary or portable. In fact, a system incorporating belt conveyors, if well-engineered, can be the most flexible handling set-up available, simply because conveyors of this type offer a flexibility typical only of them.

*Engineering-Sales, Mathews Conveyer Co.



1. Deflecting arm switching cases from roller to belt conveyor. Photo courtesy Mathews Conveyer Co.



2. A snubbing device used to keep an inclined belt taut. Photo courtesy Mathews Conveyer Co.

Rollers are the most commonly applied method of supporting the belt and the load. Usually tread rollers are complete with ball bearings, although friction bearings can be applied. It is poor judgment and certainly poor economy to support a belt conveyor with cheap, inadequate tread rollers. In doing this, one eliminates a strong point in favor of the belt conveyor—its dependability. In cases where the conveyor is short and the load fairly light, a solid supporting surface, known as a slider bed, is often used under the belt in place of tread rollers. It may be constructed either of wood or sheet metal. There is practically no vibration where slider beds areapplied. This construction affords the smoothest possible means of conveying.

Belt conveyor drives are quite interesting, but a description of them requires considerable detail. We will merely note the tandem drive and the conventional head-end drive are widely applied.

When a belt conveyor must be level and inclined, a two- or three-pulley arrangement, known as a snubbing device, is applied.

This device, located at the point of inclination, changes the belt from a level to an inclined plane. These snub pulleys are sometimes conveyor rollers, anti-friction bearing equipped. In cases where cartons or boxes must be transferred from gravity roller to an inclined belt conveyor, such a transfer is not possible if the angle of inclination exceeds approximately 12 deg. The cartons or cases would slide at the point of inclination. This problem is easily solved, however, by the application of a straight section of belt conveyor to receive the material from the gravity line and then inclining the conveyor to the desired degree by using a three-pulley snubbing device at the desired point of inclination.

Many types of belts are available for specific kinds of service. In the food industries, for example, where

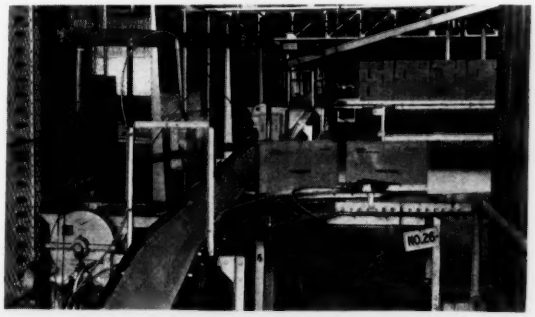


3. Belt conveyors used to bring material past operators at work tables. Photo Mathews Conveyer Co.

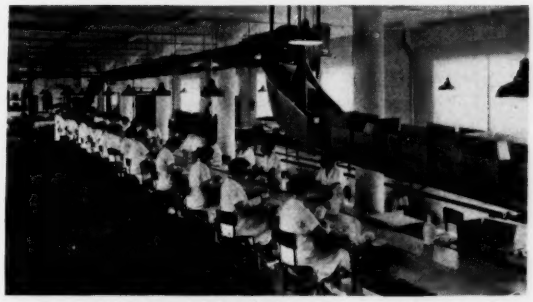
sanitary conditions must prevail, belts having a rubber-covered top and bottom surface are used. Where steep inclines and declines exist, belts having a rough top surface are quite generally applied. Belts available are stitched canvas, solid woven, rubber, rubber-covered, duck, steel mat, wire mesh and heat-resisting types.

An application of belt conveyors which merits special attention is assembly units. A slowly moving belt conveyor set at a working height approximately 30 in. above the floor, affords an ideal assembly conveyor for rapid labeling, stamping and inspecting operations. When applied in this manner, belt conveyors greatly speed up operations and aid continuous flow methods, production is increased and confusion is minimized.

In applying belt conveyors, it is often desirable to deflect material from the conveyor at a predetermined point. There are several types of deflectors available. Some are operated by hand, others by a cable attachment, remotely controlled; some are stationary, others are portable. A very common design is that which has the deflector mounted on a shaft, which shaft operates on anti-friction bearings. A deflector of this type may be locked into place and quickly swung out of deflection position when that is desired.



4. Deflecting cases from roller to belt conveyor. Photo courtesy The Alvey-Ferguson Co.



5. Chute used to deflect empty cases both horizontally and vertically. Courtesy The Alvey-Ferguson Co.

Belt conveyors have a certain value from the viewpoint of a production manager. Consider an operation in which a belt conveyor carrying a line of empty packages serves a packing table. The packages are delivered at a predetermined rate. The operator is required to fill each package and replace it on the conveyor which carries it to the wrapping or sealing machine. If the speed of the belt has been set at a rate best suited to efficient operations, then it will continually deliver empty packages to the operator at a high rate of efficiency.



Roller Conveyors

Roller conveyors are the most commonly applied and the most economical type of modern materials handling equipment. At the time of the inception of the modern power-driven conveyor units, roller conveyors of the gravity type already had a long service record in many branches of industry. Today, as then, the gravity conveyor application is a very common and satisfactory one.

The widespread use of roller conveyors can be attributed to several factors which become obvious when one compares conveyors of this type with those of other types. For example: the comparatively low initial cost and upkeep, the great variety of roller sizes, bearing designs and frame constructions available and the fact that roller conveyors are usually made up in ten-foot sections, which makes them easy to move about and simple to erect.

Seamless steel tubing is used in the modern conveyor roller and the range of sizes applied runs from one inch to twelve inches in outside diameter. There are approximately 25 different sizes available, all falling within the one-inch to twelve-inch range. This larger number of available standard sizes offers: (1) light duty conveyors for handling such articles as cartons of tobacco, confectionery and a host of other light commodities; (2) standard duty roller conveyor, for handling articles of medium weight, such as cases and cartons of bottled beverages, loaded cans and kegs, foundry molds, light machine parts and other articles of similar weight and character; (3) heavy duty roller conveyor, with the capacity for heavy castings, coils of strip steel, sheet packs and similar heavy and bulky materials.

With the increasing demand for roller conveyors in many industries, there came an accompanying demand for ball bearings of special designs. As a chain is no stronger than its weakest link, neither is a conveyor any

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6. Roller conveyors used to carry cases past curves in package warehouse. Photo courtesy Mathews Conveyer Co.

better than the bearings within its rollers. Dairies, for instance, realized the need for hermetically sealed rollers and bearings to protect the equipment against acid, steam and moisture. Friction bearings of bronze or wood are available for certain applications. In fact, there is a certain suitable roller and bearing for every practical purpose.

While it may seem to be a feature of secondary importance to the subject at hand, the axles applied in conveyor rollers are really of considerable importance and for this reason: the inner ball race of the bearing must be positively locked with the axle, so that no rotation between these two parts is possible. A hexagon-shaped axle will provide this positive locking, as will a round axle, if the latter is equipped with gear teeth on both inner ball race and axle. In the latter case, these gear teeth will mesh and lock the two parts securely.

Curves of any specified degree can be easily negotiated by roller conveyor. The rollers used in these situations are tapered toward the inside of the curve.



Live Roller Conveyors

This design differs from belt conveyors and roller conveyors in that the means of carrying the load is not an endless belt but, rather, individual rollers driven by either a belt snubbed against the underside or by chain and sprockets, or gears. Live roller conveyors are adaptable to rough, hard service, the seamless steel rollers will stand shock loading, abrasion and rough usage which would otherwise be detrimental to a belt surface over a period of time. A feature of the belt-driven type is the possibility of handling containers intermittently without stopping the conveyor. The rollers remain stationary beneath the containers while held against a stop. When the stop is released, the containers move on to the next work station or point of processing.



7. Live roller installation. Photo courtesy of the Mathews Conveyer Co.

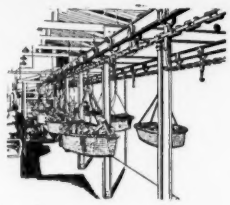
In the chain or gear-driven types, the roller action is positive and surface speeds as high as 500 F.P.M. and more are employed.

Trolley Conveyors

The trolley conveyor is not the most flexible of the various types of handling equipment and neither is it the most universal in application. However, it affords a great conservation of floor space and serves processing machinery and other operations just as efficiently as the more common floor type units. It is especially adapt-



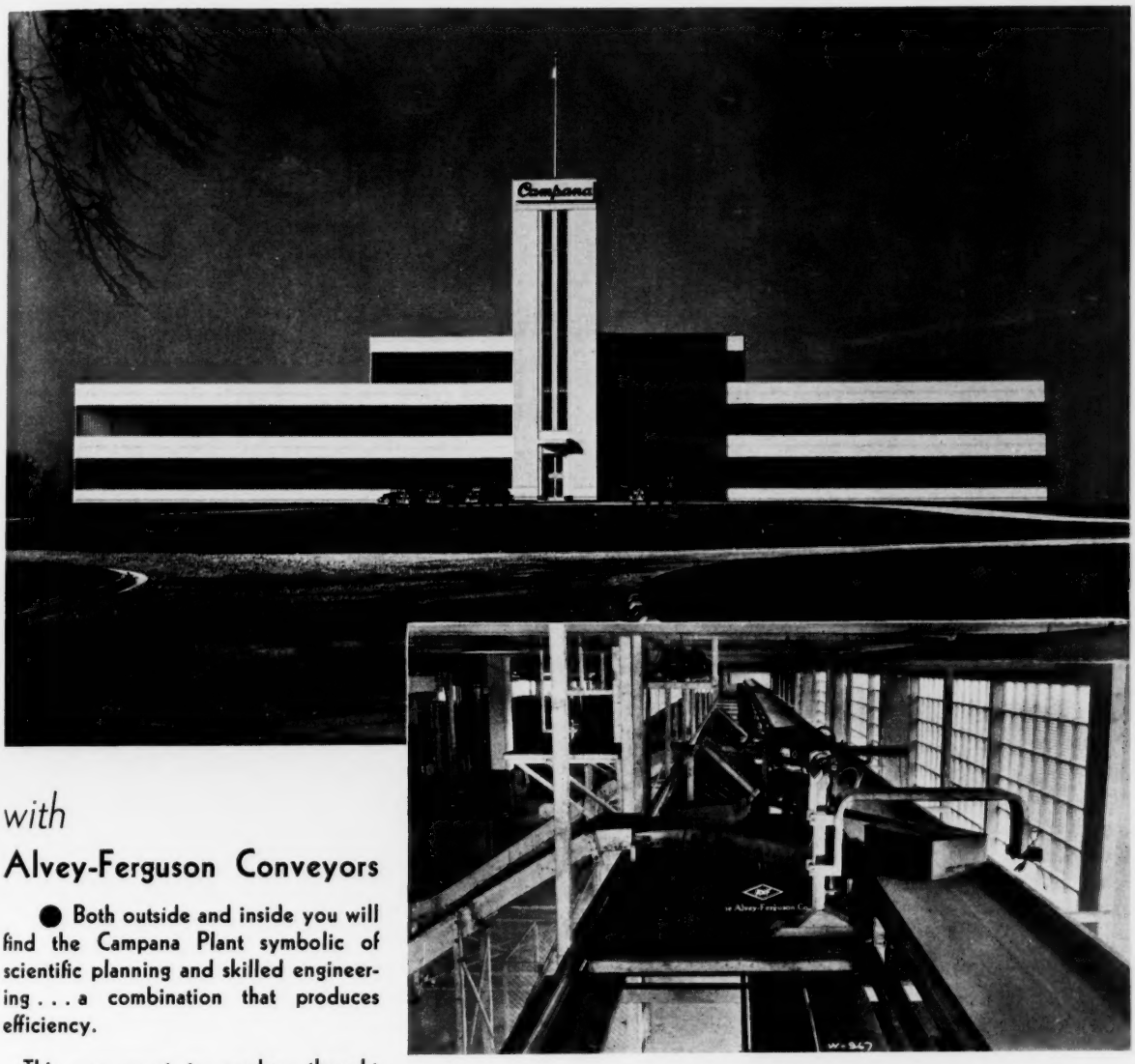
8. Live roller conveyor, rollers actuated by belt motion on underside. Photo courtesy Standard Conveyor Co.



able to mass production practices, and may be used as a mobile storage area which provides a steady supply of material to machine operators, assemblers and packers. Transverse bends permit the trolley conveyor to lower to working height at predetermined points in the plant, so that the hooks or trays carrying the product may be loaded and unloaded conveniently. Ample head room is secured throughout the working areas and aisle-ways without hindering plant operations.

The trolley conveyor is dependable, simple in mechanical operation and rarely a source of trouble. The track used is a common eye-beam, supported from the ceiling or from the floor, whichever type support best applies in the case being considered. The trolley wheels used are of the ball bearing type. They may be grease-packed or pressure lubricated; plain or flanged; of pressed steel or cast iron. When high temperatures are encountered in

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ovens, Nitralloy bearings incorporating a steel labyrinth closure are most practical.

The smooth negotiation of turns and corners is important if a trolley conveyor is to operate successfully. Roller turns or wheel turns are both suitable in this regard. The roller turn consists of rollers mounted with through shafts set vertically in a frame. These are made up in standard 45 deg. sections and can be combined to give any degree required. This type of turn requires no regular lubrication and is low in initial cost and upkeep.



9. Overhead trolley installation. Photo courtesy The Lamson Co.

It provides uniform chain tension throughout the conveyor. The wheel or sprocket turn consists of an ordinary traction wheel or sprocket to negotiate the turn and provide chain tension.

The fact that so many different types of carrying devices can be applied, adds to the flexibility of conveyors of this type. Hooks and trays have been developed for handling furniture, automobile tires, coils of wire, cigarettes, radiator shells, machine parts, electrical appliances and a score of other products. Special hooks have been developed for conveying in acids and other solutions. In fact, the variety of carrying devices available enables us to consider most any load a trolley load.

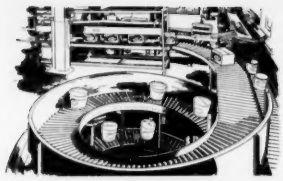
10. Ball bearing trolley wheel and hanger. Photo courtesy Mathews Conveyer Co.



Roller Spiral Conveyors

Roller spirals consist of a number of 90-deg. curved sections of roller conveyor set in the form of a spiral and mounted in a structural steel framework.

As a means of lowering merchandise smoothly and safely from floor to floor, the roller spiral conveyor compares favorably with sheet metal spirals and is widely

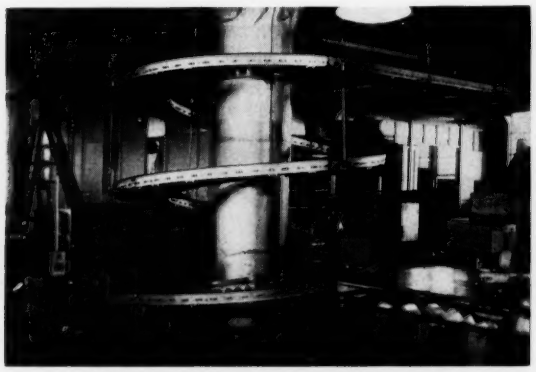


applied. In fact, the roller spiral has advantages to offer which are peculiar to it alone. It is positive and smooth in action and can be used for temporary storage when that is necessary. Since the descent is quite slow and very smooth, cartons, boxes, kegs and containers of many kinds can be handled on the spiral uncovered, without danger of damage or upsetting.

The roller spiral conveyor is made in three standard types, namely: (a) the single roller two-rail type with standard straight rollers; (b) the single roller two-rail type with standard tapered rollers; (c) the double roller three-rail type with standard straight rollers. For best results, the double roller construction is recommended, for it offers greater strength since it places a greater number of bearings under the load and reduces outside guard rail friction to a minimum. This latter feature lowers the possibility of stoppage at inaccessible points of the spiral. The single roller types are recommended only when small sized and light items are to be conveyed.

In many cases where a roller spiral passes through and serves several floors, it is desirable to put materials on the spiral or remove them from it at intermediate floors. To accomplish this, loops are used at these specific floors. In other words, at the point where commodities are to be taken from the conveyor, two straight sections and half a turn of roller conveyor are inserted in place of one-half turn of spiral. This forms a loop extending out from the spiral and affords the opportunity of the straight sections being used as switches to additional lines of roller conveyor. These switches can be so arranged that the commodities will travel, without interference, on down through the floor without stopping.

Where the lack of space will not permit the use of the loop arrangement, the same results can be obtained, although not so satisfactorily, by means of intermediate receive and discharge frog sections inserted into the spiral at the desired points. The intermediate discharge section is equipped with a swinging type of guard controlled



11. Spiral roller conveyor built around a pillar. Photo courtesy The Lamson Co.



Ask us to solve your problems . . .

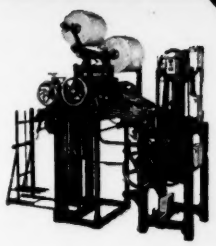
For over a quarter of a century, our staff of engineers have been solving carton packaging problems for plants all over the world. Many packages have been changed in shape and design to give them a more attractive appearance and to increase their sales, at the same time lowering their production costs.

Machines have been developed to set up and close these cartons economically and at rates of speed to meet requirements.

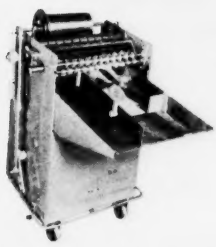
Most of the biscuit, cracker, lard, shortening, cheese, macaroni and frozen foods cartons are handled on PETERS Machines . . . also a large number of other cartons for various products.

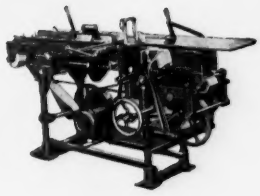
This equipment is built in completely automatic and semi-automatic models to set up and close cartons at speeds ranging from 10 to 60 cartons per minute. Send us samples of your cartons or their sizes and ask us to recommend machines to handle them economically.

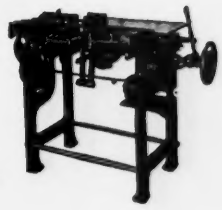
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by a hand-operated mechanism. When commodities are to continue down the spiral, the guard rail is set in line with the spiral guards along the periphery of the spiral, but when it is desired to discharge the commodities at the intermediate point, the guard is swung across the path of the spiral, thus deflecting the commodity onto a connecting line of roller conveyor. This arrangement is not applicable to spirals having tapered rollers.

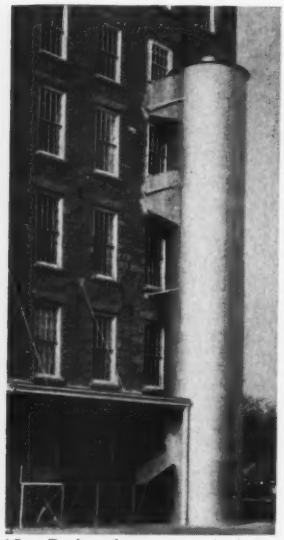
Roller spirals are usually constructed with a single track, but, when necessary, they can be constructed with two or three tracks, one above the other. The only advantage this construction offers is that materials may be received from different locations and kept separate during the descent and discharge.



Sheet Metal Spiral Chutes

The sheet metal spiral chute is without peer when merchandise must be lowered from one floor to another. Utilizing the force due to gravity, it offers a continuous delivery service that requires no power and is always ready for use, having practically an unlimited capacity.

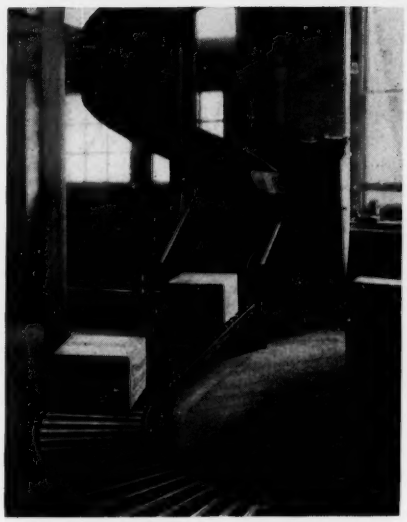
There are several types of spiral chutes, each one useful in its own field of application. The enclosed type of spiral chute is widely applied for handling boxes, bags, bales and even loose materials. It is most desirable in cases where the material being conveyed must be carefully checked by certain individuals assigned to that job. The conveying done on a chute of this type is not visible to the public and those at the receive and discharge ends can be entirely responsible.



12. Enclosed type spiral chute. Photo courtesy of the Mathews Conveyer Co.

Floor openings for spirals of this type are circular, being slightly larger than the enclosure itself. In many cases, enclosed spirals are erected outside a building. In that case, the spiral is usually made of galvanized sheet metal, due to the condensation which is encountered in that construction.

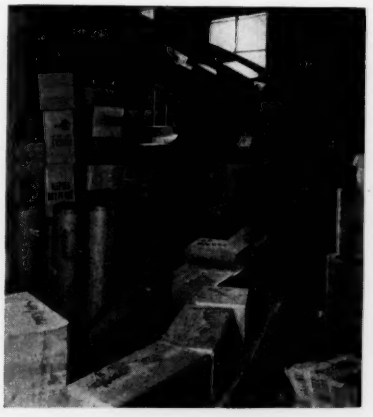
The open standpipe type chute is suitable for installation in closed or open shafts where, for various reasons, an enclosed type chute is not necessary. In existing buildings, old elevator shafts are often used for



13. Open standpipe spiral chute. Photo courtesy of the Mathews Conveyer Co.

installing the spiral. When no shaft-ways are available, it is necessary to cut an opening in the floor large enough to allow the standpipe and blade to pass through, plus sufficient clearance for the maximum size package to be conveyed. The standpipe used with this type of spiral is merely a substantial iron pipe to which the blade is riveted and around which it describes a spiral. The standpipe rests on the lower floor and extends upward the entire length of the spiral.

The open core type of chute is especially adaptable for handling long and narrow articles of bulky classes of merchandise. It is used where the spiral can wind around an existing column or where it passes through floors in locations limited by beams or girders that cannot be conveniently cut or moved. This type of spiral has no enclosure or center standpipe to support the blades. It is supported entirely by means of hanger supports fastened to the ceiling or floor supports and by angle floor plates located at each floor opening.

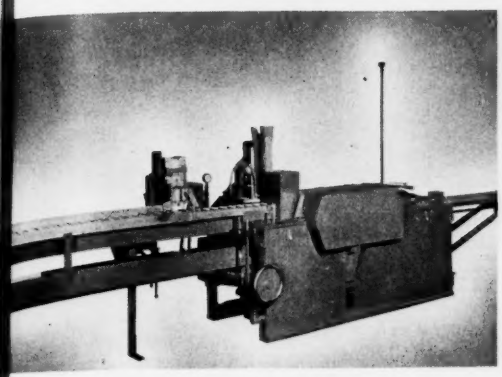


14. Chute supported by ceiling hangers. Photo courtesy Mathews Conveyer Co.

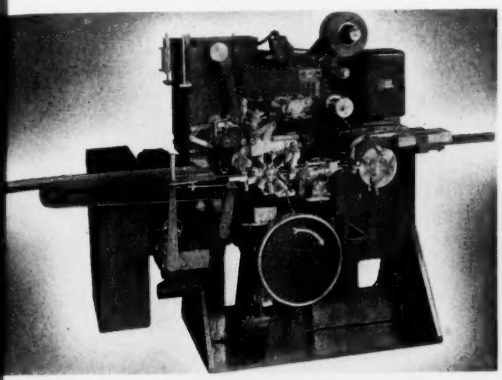
Large and small boxes, such as containers used in wrapping department store merchandise, cartons of all kinds and containers of practically any size and shape can be conveyed on spiral chutes designed especially for handling such containers.

REDINGTON PACKAGING MACHINES

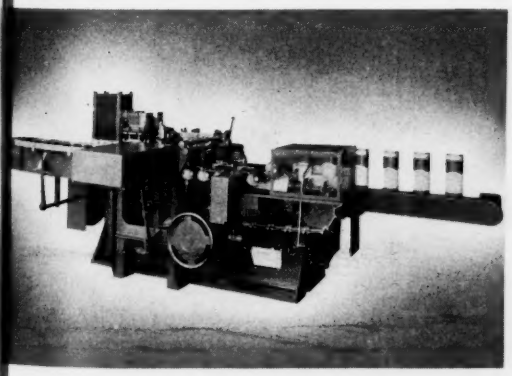
for practically every type of product from soap to smoking tobacco . . . drugs to razor blades



Medium size tubes of Colgate's Ribbon Dental Cream are cartoned on this Redington Continuous Loading Cartoning Machine. Cartoner has mechanism for folding a circular and placing it over the top of tube.



The 5c carton of Chiclets (candy coated gum) is Cellophane wrapped on this Redington after another Redington Machine does the cartoning. The Easy Opening Tape printed in fixed design is applied by a special mechanism. Built with photo-electric cell control mechanism.



The new 26 oz. bottle of Phillips' Milk of Magnesia is wrapped on this special Redington Machine. The wrap includes a corrugated protector and a circular. Unusual feature: samples and other items can be inserted in this distinctive package before it is sealed.

CARTONING MACHINES

● *Consult Redington* for automatic cartoning of practically any solid item. Machines are available for inserting bottles, jars, collapsible tubes, razor blades, candy coated gum, oleomargarine, macaroni, soap and almost any other solid item or container in glued-end or tuck-end cartons. Redington Cartoning Machines can be equipped with circular mechanism for automatically handling printed advertising matter —means for printing on cartons— means for code stamping carton— mechanism for other features such as placing a corrugated protector around bottles.

WRAPPING and CELLOPHANE WRAPPING

● *Consult Redington* for high speed wrapping machines for handling products in Cellophane, Sylphrap, wax or glassine paper and other wrapping materials. Redington Wrapping Machines can be equipped with mechanism for applying "Easy Opening Tape"—with photo-electric cell mechanism for controlling cut-off of printed design—with special mechanism for handling government stamps for tobacco packages and with many other special mechanisms. The American Chicle Co. unit at the left is a typical Redington installation.

SPECIAL PACKAGING

● *Consult Redington* for packaging machines that defy classification . . . the unique wrap of Listerine, the distinctive interlocking wrap for tins of Underwood's Deviled Ham, Bayer's tins of Aspirin, Phillips Milk of Magnesia package, Life Saver's, professional and sample envelopes for Bayer's Aspirin and Grove's Laxative Bromo Quinine.

And whether or not we've mentioned the type of package similar to yours, remember, Redington has 41 years of experience to draw upon in solving your problem. Consult us—free of obligation.



F. B. REDINGTON CO. (Est. 1897) 103 So. Sangamon St., CHICAGO, ILL.

XUM



Pusher-Bar Conveyors

In plants of many branches of industry, it is frequently necessary to apply long lines of roller conveyor, some of which are at different elevations than others in the same system. Unless the height at the point of receive is unusually great, these long gravity lines must be regraded and, also, some connecting link must be applied between the lines at different elevations, if there is to be any continuity in the system. Aside from the inclined belt conveyor, the most common unit applied for regrading gravity conveyor lines and for connecting one conveyor line to a higher one, is the inclined pusher-bar conveyor.



15. Inclined pusher-bar conveyors. Photo courtesy Mathews Conveyer Co.

This type of unit, which is essentially a chain conveyor, is comparatively plain in design and is rarely a source of mechanical trouble. It consists mainly of two parallel strands of roller chain, which operate smoothly on run angles. Pusher-bars are mounted at intervals in the chain. They are usually made of pipe and serve to push the load up the incline. The load being conveyed is supported by a heavy sheet metal tread plate, which serves as a slider bed, being of a smooth surface which creates very little friction.

To meet the demands of both heavy and light service, pusher-bar conveyors are built in light and heavy duty types, each type, of course, having its specific application. The light duty units are used where the load involved is comparatively light and does not exceed 25 ft. in length. The heavy duty conveyor is applied where the unit is long or the load involved is comparatively heavy. Both light and heavy duty types of pusher-bar conveyors are to be had in four standard inclinations, as follows: 30 deg., 45 deg., 60 deg. and 90 deg. However, practically any degree of inclination can be applied when necessary for special conditions.

The matter of receive and discharge elevations is important when pusher-bar conveyors are being considered.

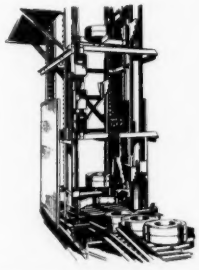


16. Pusher-bar conveyor with metal tread plate. Photo courtesy Mathews Conveyer Co.

Neither type, heavy or light, can operate with a receive elevation of less than eight and one-half inches. The minimum discharge elevations vary, however, as follows: light duty—30 deg. and 45 deg., 3 ft.; 60 deg., 4 ft.; 90 deg., 7 ft.; heavy duty—30 deg., 3 ft.; 45 deg., 3 ft. 6 in.; 60 deg., 5 ft. 6 in.; 90 deg., 9 ft. 6 in. The discharge elevation is equal to the sum of the receive elevation and the vertical distance through which the loads are elevated. This vertical distance is designated as the lift.

Inclined pusher-bar conveyors are usually operated at comparatively low speeds and for this reason give a long period of dependable service. The rollers of the chain operate on run angles and the sheet metal tread plate is polished, resulting in a minimum of friction to be overcome. Because of this, very little power is necessary to drive the conveyor.

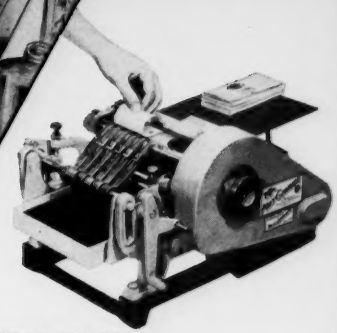
The driving mechanism used on an inclined pusher-bar conveyor usually consists of a gear-head motor with chain connection to sprocket. Motor and speed reducer combinations are sometimes used and an occasional spur gear set-up is applied, the latter having been the popular type a few years ago, but having been replaced by less complicated and more economical types.



Elevating Conveyors

In every plant where materials are handled from floor to floor, elevating conveyors form an important part of the handling system. The two most widely applied types, the automatic straight lift elevating conveyor and the automatic vertical hoist, are serving industry to excellent advantage. In fact, conveyors of these types comprise the most important part of an inter-floor handling system.





NEW JERSEY
TABLE GUMMER

Four LABELING UNITS . . . THAT SOLVE *all* LABELING PROBLEMS!

1. THE E-Z LABELING DEVICE: A low-cost, simply operated device for applying gummed labels to bottles. Accurate register. Ideal for limited daily production, or small runs of "private brand" products.

2. N. J. TABLE GUMMER. A gummer that acts as "pacemaker" in supplying gummed labels to hand operators. Made in five sizes; with or without stand.

3. THE PONY LABELRITE, labels up to 60 a minute by hand or conveyor feed; perfect register, and no need for wiping bottles. For all normal productions. Petty-cash change parts; cleans itself.

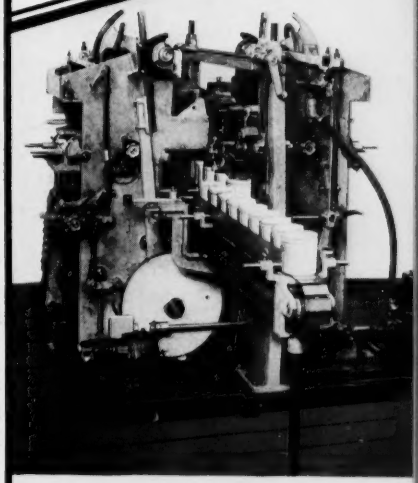
4. FULLY AUTOMATIC LABELRITES for high speed work labeling both sides at once, 60 a minute, or with single label up to 120 per minute. Has all the advantageous features of the PONY, but built for maximum production.

THESE LABELERS ARE FULLY GUARANTEED TO DO THE WORK FOR WHICH THEY ARE SOLD.

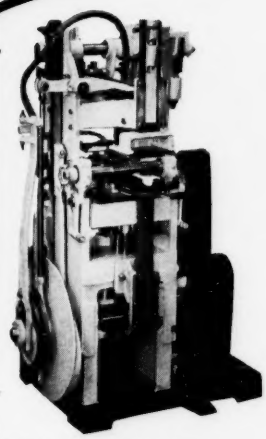
Write for Descriptive Catalog!



The E-Z
LABELING DEVICE



FULLY AUTOMATIC
LABELRITE



SEMI-AUTOMATIC
PONY LABELRITE

NEW JERSEY MACHINE Corporation

1600 Willow Ave., HOBOKEN, N. J. *Chicago Office:* 549 W. Washington Blvd.

Sales Representatives for your convenience in:

SAN FRANCISCO
LOS ANGELES
SEATTLE
PORTLAND

SALT LAKE CITY
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OMAHA
DES MOINES

ROCK ISLAND
OKLAHOMA CITY
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MINNEAPOLIS

ST. PAUL
CINCINNATI
TORONTO, ONT., CANADA
LONDON, ENGLAND

MOTOAIR

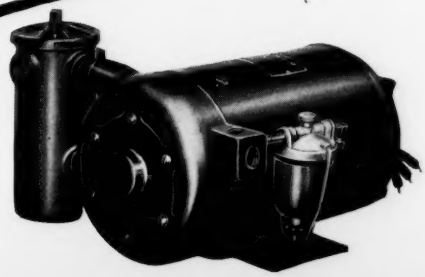
Combining Motor and Pump in ONE INTEGRAL Unit.

No gears, sprockets, belts or drives; which means longer life and less upkeep.

FOR VACUUM OR PRESSURE, or BOTH!

Slightly larger than motor itself, MOTOAIR is made in all standard sizes; fits into any machine design without worry about speed calculations. No pulsation. Constant vacuum or pressure; positive oil control.

Write "MOTOAIR DIVISION" of N.J. Machine Corpn. for descriptive catalog.

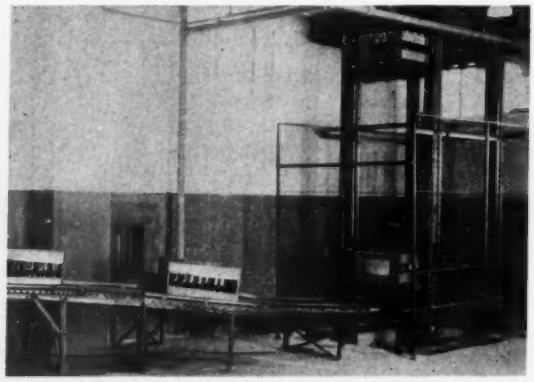


XUM

The straight lift elevating conveyor is especially efficient when used in conjunction with roller conveyors at the receive and discharge points. Materials may be taken from one floor and be discharged at any floor either above or below.

Straight lift elevating conveyors are designed in four standard sizes, each size, of course, intended especially for articles of definite specifications. Kegs, barrels, bales, boxes, cartons and objects of the most irregular contour can be handled on an elevating conveyor of modified standard carriage design. It is not a difficult matter to design a conveyor of this type to handle articles of such unusual size or shape, although standard equipment is not always suitable.

The unloading or discharge station is always located on the descending side of the conveyor. The commodities are placed on the receive stations by means of a special loading device which permits only one commodity on the station at a time. When the articles being handled are

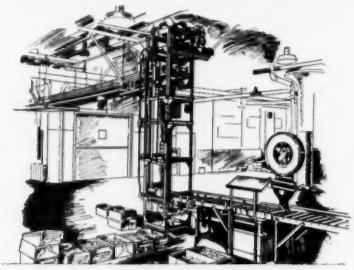


17. Automatic lift conveyor. Photo courtesy of the Mathews Conveyer Co.

rectangular or square in shape, of uniform size and in good condition, the loading operation will be automatic. However, if this is not the case and the containers are not uniform, odd in size, or in poor condition, an attendant may be required to assist in the loading operation. For example, cylindrical-shaped objects or barrels on the bilge require manual loading over suitable skids.

The carriage of the elevating conveyor ascends, raises the commodity from the loading station and carries it over the top of the elevator, releasing it at the discharge station on the opposite side of the conveyor in the course of its descent. The commodities are discharged automatically to lines of roller conveyor when boxed commodities are conveyed and to skids when cylindrical objects or barrels on the bilge are conveyed. The opening and closing of the receive and discharge stations may be controlled by means of hand levers located adjacent to the station, or by means of a cable-controlled system which may be operated from any desired location, usually at the main loading station.

The carriages of the conveyor are safely and smoothly transferred over the top by means of a carriage control which guides the carriage and prevents it from tipping. This carriage control consists of a segmented gear meshing with a loose gear mounted on the head shaft, the speed of the loose gear being regulated by two small steel chain meshing with their sprockets.

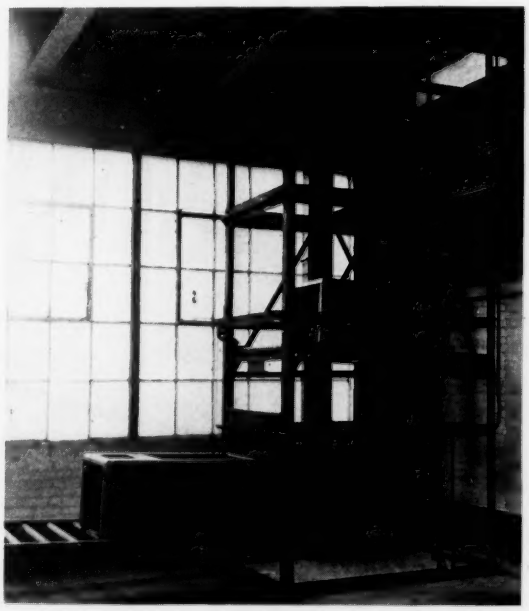


Vertical Hoists

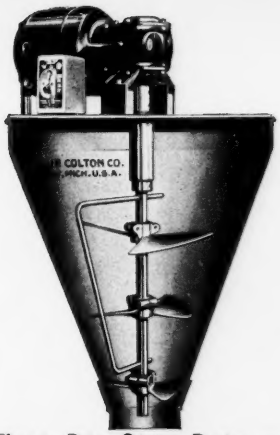
The vertical hoist, while performing a service similar to the straight lift elevating conveyor, is not of the continuous motion type and is usually contained within the confines of one floor level. The carriage for the load consists of a tray with a roller bed, connected by means of a steel cable to the drum and drive mechanism at the top of the hoist.

Vertical hoists are designed primarily to receive boxes, tote pans, etc., from a line of roller conveyor at a low level and deliver them to another line located overhead. They can also receive from an overhead line and descend to a line at a lower level.

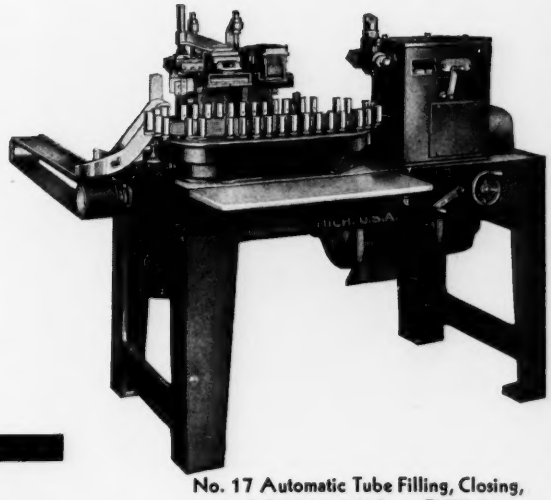
A specially designed roller receive station is located at the base of the hoist and is controlled by means of limit switches, so that boxes cannot be admitted except when the carriage is in the proper position to receive them. In a similar manner, other limit switches are located at the discharge end of the hoist so that, in case the line is filled, the hoist will stop until it is cleared. The reverse is true when the hoist is used for lowering objects.



18. Vertical hoist conveyor. Photo courtesy of the Mathews Conveyer Co.



Electric Drive Stirring Device as shown is recommended for materials that do not flow readily in our standard hopper



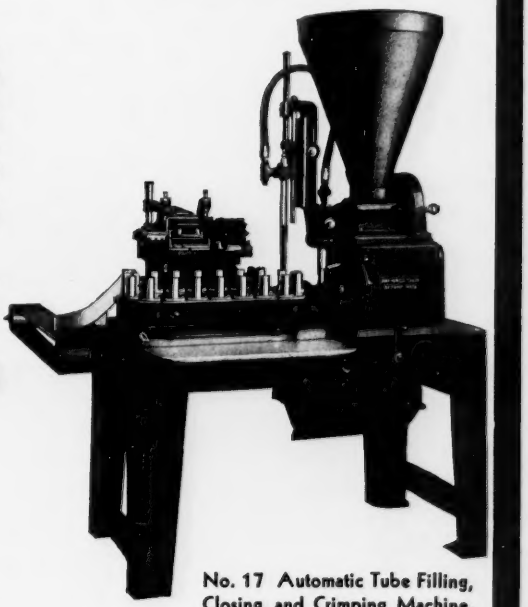
No. 17 Automatic Tube Filling, Closing, and Crimping Machine, TYPE C

COLTON FILLING AND CLIPLESS CLOSING MACHINES

Three new machines not only modernized in design but they embody many new improved mechanical features to make for smoother operation as well as flexibility in speed to varied conditions by adding variable speed control, new type clutch and filler drive. Motor, clutch and transmission mounted underneath bed, push button motor starter, built in air valve for nozzle cut-off, improved nozzle operating mechanism, automatic nozzle cut-off to prevent drip. Can be equipped with our new electric drive stirring device (at extra cost).

Type A for pastes, Type B for powders, Type C for liquids.

Types B & C can be equipped with twin tube holders (at extra cost) for tubes up to ¾" dia.



No. 17 Automatic Tube Filling, Closing, and Crimping Machine, TYPE A

No. 17 Automatic Tube Filling, Closing, and Crimping Machine, TYPE B



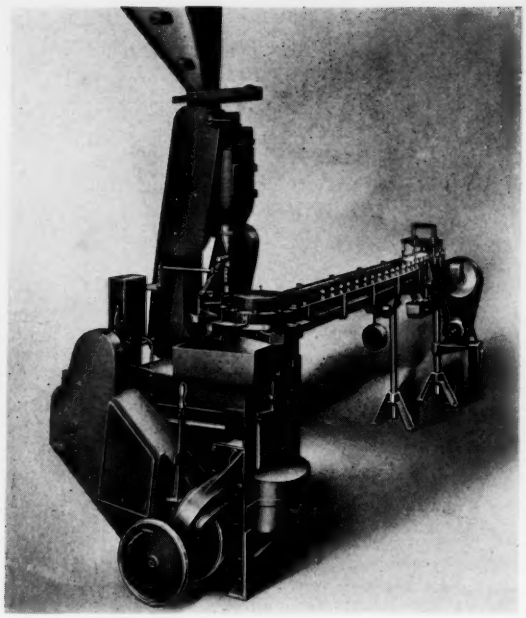
ARTHUR COLTON CO.

2602 JEFFERSON AVE., EAST

DETROIT, MICHIGAN



1. Compression filler for accurate filling of non-free-flowing materials. Photo courtesy Pneumatic Scale Corp., Ltd.



2. Volumetric filler with four rotary mounted measuring receptacles. Photo courtesy Frazier & Son.

WEIGHING AND FILLING DRY PRODUCTS

by A. R. KEENE*

The various types of containers used in modern packaging work are familiar to most manufacturers of packaged products. Regardless of the relative merits of all types, it is vitally important that the one you select be constructed carefully. It is essential to choose a design which is attractive and appealing, but it is just as necessary to be certain your package is made to handle efficiently on automatic equipment. Even though your present output can be well taken care of by hand or semi-automatic methods, it won't cost you any more to adopt a container that lends itself to automatic methods. Get started right and you'll be that much further ahead when increasing sales demand maximum output.

Avoid tricky and complicated packages and don't let anyone tell you that unusual shapes and sizes can always be handled without difficulty. Perhaps they can, but your machine builder should be consulted for a final check on all doubtful points.

It is impossible, in this article, to hope to cover the thousand and one points which are important in designing containers to insure packaging efficiency. We will mention a few in the following discussion but you should ask the container maker and machine builder to cooperate with you on your package jobs.

There is one packaging machine function which remains basically the same regardless of container type, namely, filling and weighing. By "the same" we mean that any of the following four methods might be used whether the package is a bag, can, jar, carton or canister. We will list the four systems and discuss each one very briefly:

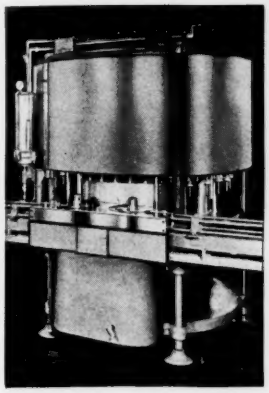
(a) Accurate filling
(b) Gross weight weighing
(c) A combination of (a) and (b)
(d) Net weight weighing

Before considering each of these four basic methods it perhaps will be wise to mention some of the standards, set up by the Department of Commerce, relating to weights and measures. Packagers should likewise take cognizance of additional regulations which may be promulgated under the new Federal Food and Drug Act, which becomes fully effective on June 25, 1939. Export packages and those going partly into export channels likewise come under additional restrictions in some instances. It is an almost invariable rule that a food products package shall be plainly and conspicuously marked with the quantity of the contents in the terms of weight, measure or numerical count on the outside of the container. Certain tolerances and variations from the quantity of the contents indicated are allowed.

* Advertising Manager, Pneumatic Scale Corp. Ltd.

MACHINERY OF ENGINEERED-DESIGN

ROTARY VACUUM FILLERS



Available in four sizes, with 16, 22, 30 and 48 filling tubes. Tubes raise and lower, which allows the revolving bottle table to travel on an even plane, the most revolutionary advance ever made in Rotary Vacuum Filler construction. Absolute hair-line filling is an assured fact; there is no waste of the product being filled.

For all free-running, viscous, syrupy or foaming liquids. Fillers also used for brining purposes.

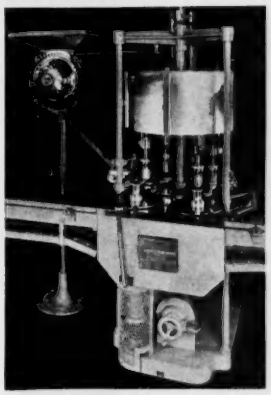
Equipped with vari-speed control where a ratio of speeds from 2.6 to 1 is obtainable.

ROTARY CAPPERS

Available with 4 and 8-heads, as desired. Full-floating capping chucks do an efficient and speedy job on all capping problems coming within the range of these two machines.

Capping speeds are variable, controlled by the very efficient U. S. Vari-Speed control. Ratio of speeds is from 2.6 to 1, and any desired speed within the minimum and maximum capacities and limits of these machines is obtainable.

Particularly efficient when used in conjunction with U. S. Rotary Vacuum Fillers, but fit in with any filling machine line.



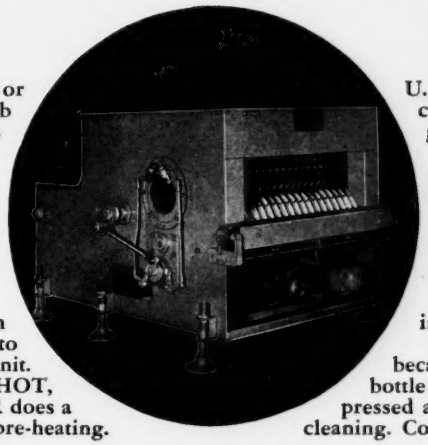
BOTTLE CLEANERS
For Washing With Water

U. S. Bottle Washers, using either hot or cold water do an efficient and rapid job of thoroughly cleaning the containers before they are fed to the filling machine. Every particle of carton lint, dust, dirt or glass particles is removed from the bottle.

Equipped with the famous patented Oscillating Unscrambler Feed, one man can load the washer to the limits of its capacity.

The External Discharge Mechanism and Self-Aligning Bearings add much to the performance and long life of the unit.

When products must be filled HOT, washing bottles with HOT WATER does a two-fold job—that of washing and pre-heating.



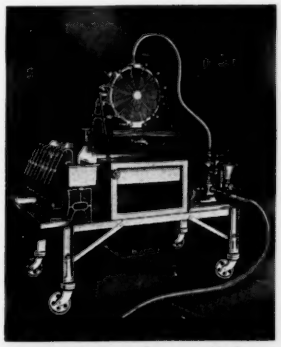
BOTTLE CLEANERS
For Cleaning With Air

U. S. Bottle Cleaners, using man-made compressed air and the natural law of gravity for the cleaning mediums, do an exceptionally efficient job on cleaning bottles. All dirt, dust, carton lint and glass particles are removed from the bottles before they are fed to the filling machine.

Speedy, the cleaning capacity of this machine more than matches the speediest filling capacity of any filling machine.

Containers are thoroughly cleaned, because at the actual point of cleaning, the bottle is in an upside-down position. Compressed air is used only at the actual point of cleaning. Compressed air costs are low.

COMBINATION OUTFITS



These outfits consist of a transfer pump, filter and siphon filling machine. Combination Unit can be operated by one operator, and the triple job of transferring the product, filtering it and finally filling it into your regular containers is a one-man operation.

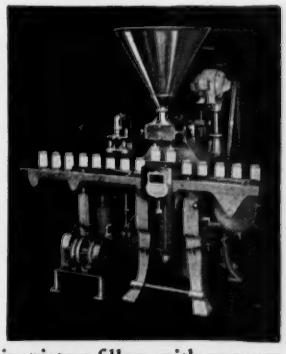
Used widely throughout the entire country in the food, liquor, drug and cosmetic fields.

Product can be drawn from barrel or any other container, directed to and through the filter to the siphon filling machine, where rapid filling takes place. Write for complete data, prices and specifications.

PISTON FILLERS

These units are for the efficient and low-cost-per-unit packing of all semi-liquid and semi-solid products. In this classification are included the following—mayonnaise, salad dressings, sandwich spreads, mustards, relishes, greases, ointments, salves, cold and vanishing creams, emulsions, heavy oils, lotions and products of a similar density.

Furnished in single, twin and four-piston types, with or without vacuum cleaning head. Unit illustrated is a twin-piston filler, with vacuum cleaning head. Write for complete data, specifications, prices, etc.

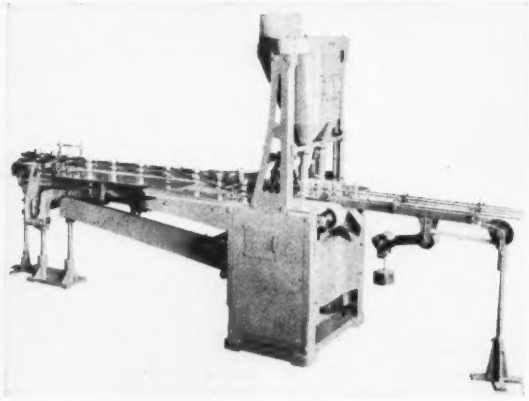


U-S BOTTLERS MACHINERY CO.
4032 NORTH ROCKWELL STREET • CHICAGO

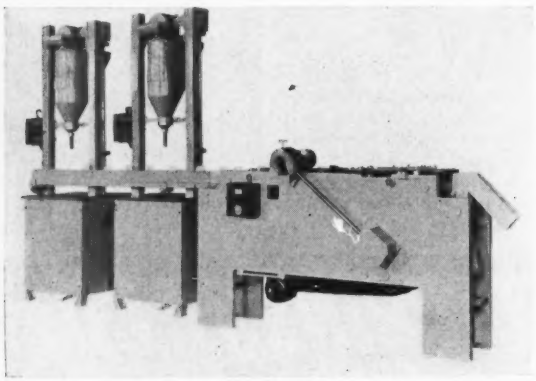
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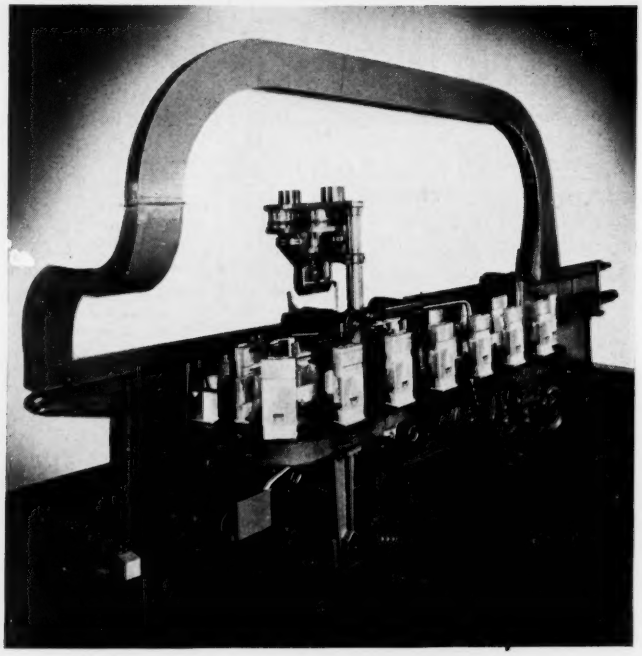
3. Volumetric filler with agitator to feed powdered materials. Photo courtesy Triangle Package Machinery Co.



4. Automatic duplex filling machine. Courtesy Stokes & Smith Co.



5. Enveloping, filling and sealing unit. Photo courtesy of Stokes & Smith Co.



6. Four pocket rotary volume filler mounted in combination with carton sealing device. Photo courtesy J. L. Ferguson Co.

(1) Discrepancies due exclusively to errors in weighing, measuring or counting which occur in packing conducted in compliance with good commercial practice. (2) Discrepancies in weight or measure due exclusively to difference in atmospheric conditions in various places, and which unavoidably result from the ordinary and customary exposure of the packages to evaporation or to the absorption of water. Discrepancies in the first case mentioned shall be as often above as below the marked quantity. The reasonableness of discrepancies under the second class will be determined on the facts.

Another discrepancy encountered is in not maintaining uniformity in specific gravity of product at point of delivery to the weighing or filling machine. In many instances this is accounted for by stratification of product as it flows from the bin. Sometimes it is caused by necessary agitation in bin. Whether a product is net weighed or gross weighed, there always is a certain percentage of product in each package that is never weighed, viz., the stream in the air between the cut-off gates and the product in the container—at the time of cutting off flow of product. Any variation in specific gravity of product or uniformity of stream of this "never weighed" portion is naturally reflected in the accuracy of weights.

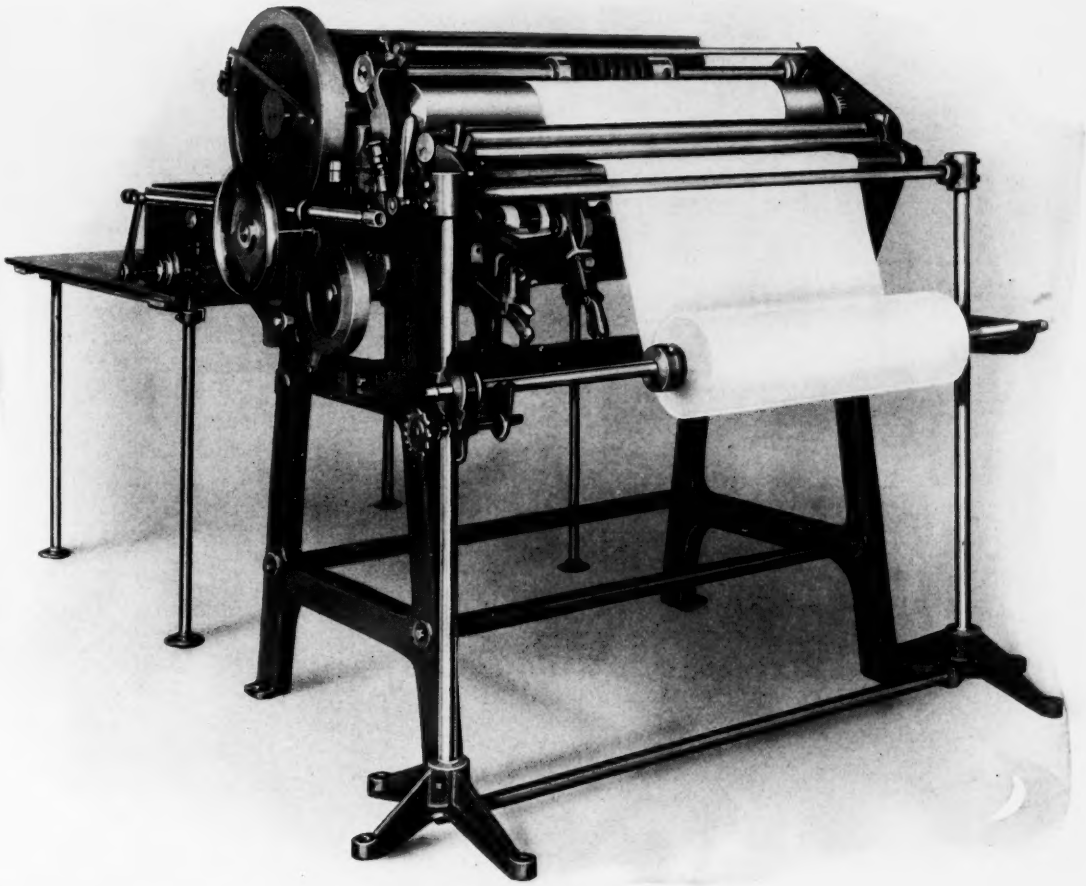
A package containing $1/2$ avoirdupois ounces of food, or less, is "small" and shall be exempt from marking in terms of weight. The term "small" in the foregoing sentence should not be confused with the use of the same word in the following discussion of methods of filling and weighing packages. It is difficult to determine where the line should be drawn in terming a package small or large or medium, as applied to the general packaging field, and therefore we will leave this par-

XUM

LOWER COST FOR YOU WITH THE

AUTOMATIC HIGH SPEED **BECK** CURL REMOVING SHEET CUTTERS

These machines have reached their present high state of efficiency and economy of operation only after long years of experience and research in this field. Fully ball and Roller Bearing equipped with complete Curl Removing feature, they offer to purchasers a definite labor cost reduction program, for sheeting of all kinds of papers, glassines, waxed, foils, imitation leather, book cloth, burlap and cotton goods as well as Cellophane and other cellulose papers. On these and lighter weights, as many as 5 and up to 10 rolls may be cut at a time. Think what such output would mean in reduced labor costs?



ELECTRIC EYE comes into play in cutting to printed register through our Differential Cut Register Control Unit. For bread-wraps and all kinds of label and printed work. Large concerns who require exacting accuracies in the cutting of expensive materials, and where waste must be eliminated find this invaluable for high production cutting to printed register. Furnished for manual control, as standard equipment.

AUTOMATIC SHEET PILER, is our newest, with completely automatic lowering table. Takes a pile up to 33″ high in sheets up to 50″ long, by the width of the web. Maximum convenience in unloading from either side or from end of Piler. High speed for quickly raising empty table.

OUR "DEMI"—The smaller interpretation of our sheeters. Less elaborate and elastic but with ample working range for users of Cellophane, etc., cuts 1/8″ to 24″ in length, in rolls up to 24″ wide. Handles as many as 4 rolls at once in speeds up to 60 cuts per minute. Stacks sheets neatly in Jogger Table because side-wise screw adjustment on parent shafts correct sideweaving of rolls. Ball bearing equipped, and breakdown proof.

RAZOR BLADE SLITTER—Low maintenance cost, plus added advantages of highly polished edge on Cellophane, etc. Individual rewind tension on each strip produces tight and beautifully wound rolls. Small, compact and simple. Used extensively also on Glassine, etc. Other classes of materials may be handled on our Disc Type or Shear Cut principle Slitter.

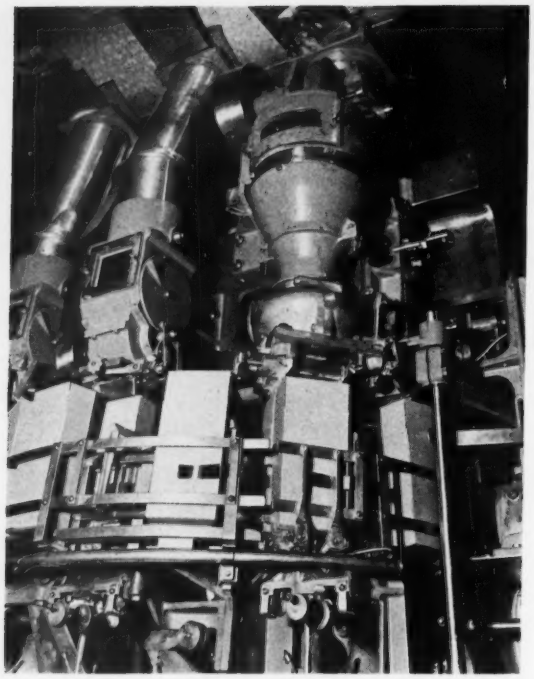
WHY USE COVER PAPERS? Rotary Copper Engraved Roll Printer, prints beautiful designs, Trade-Marks, etc., direct on box-board eliminating need for cover paper. Uses water base aniline ink. Much less expensive than oil base printing inks.

SEND FOR PRICES

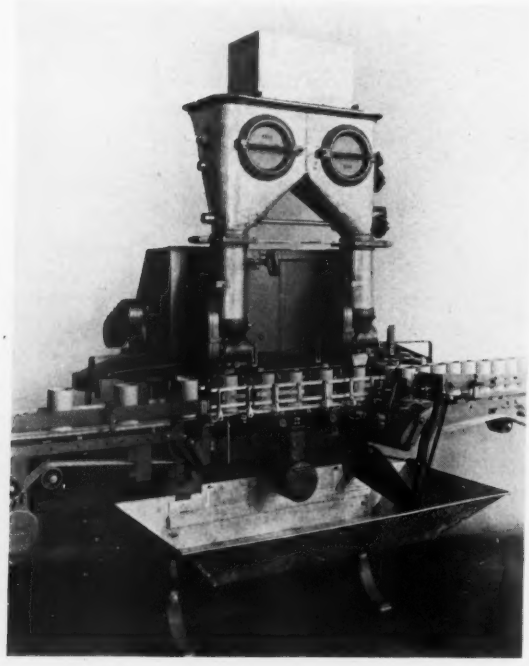
CHARLES BECK MACHINE CO.

13th at CALLOWHILL ST.
PHILADELPHIA, PA.

XUM



7. Circular gross weight weigher, capable of speeds up to 65 packages per minute. Courtesy Pneumatic Scale Corp., Ltd.



8. Two-scale, straight line gross weight weigher, fully automatic. Speed 25 to 40 per minute. Courtesy Pneumatic Scale Corp., Ltd.

9. Flour packing and weighing unit. Speeds 8 to 30 per minute. Note automatic bag transfer to accurate weighing station and then to tying or sewing or sealing unit. Photo courtesy Pneumatic Scale Corp., Ltd.

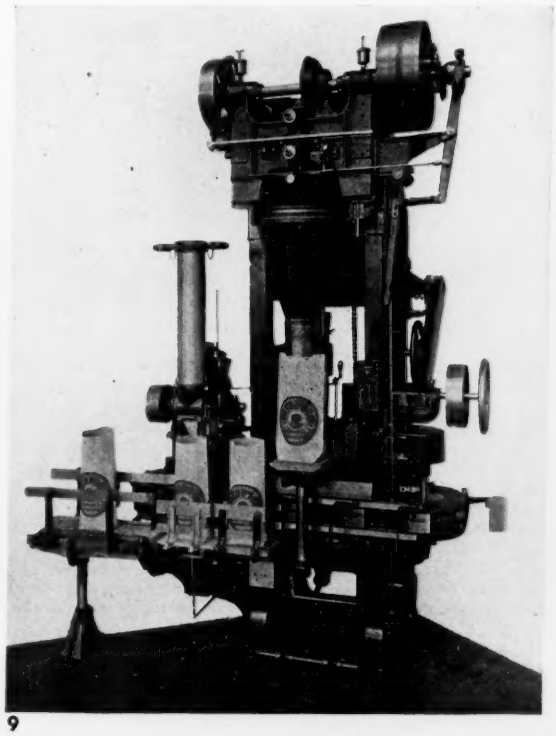
ticular question to the reader's good judgment wherever the word "small" appears in our discussion.

Accurate filling is not the most common principle but probably is the simplest. With this method correct quantities of certain products can be measured mechanically without using a weighing device. One way of accomplishing this is to measure by volume, and the other by means of a definitely timed or regulated feeding of the material. Good commercial accuracies can be guaranteed with correctly built machines of this type as long as the bulk of the material remains uniform. If, however, the nature of your product is such that it varies in weight per unit of volume, then measuring won't be entirely satisfactory, if accuracy is a necessary requirement of your production.

Remember, too, that if your package must be marked with the weight of its contents, then it is important to be sure that any filling method you adopt does give uniformly accurate weights.

One more general rule is that measuring is advised not only for comparatively small sized packages, for it has proved more practical than weighing for some products in large packages. We refer particularly to such products as puffed cereals, corn flakes, etc., the weight of which is a very small fraction of an ounce per cubic inch. To actuate a scale beam evenly, the stream would have to be larger than is practical, hence the practice has been to measure rather than weigh.

Typical cases where accurate filling is successful include: Scouring powder in canisters, jelly crystals and dessert powder in small cartons, tooth-powder in cans, face-powder in paper boxes, cut tea in tea-balls, granular salts in bottles. Speeds ranging all the way from 10 per



9

NEW POSSIBILITIES FOR SATCHEL BOTTOM CELLOPHANE BAGS

With the Champion VWS

LONGER BAG WITH SAME MATERIAL!



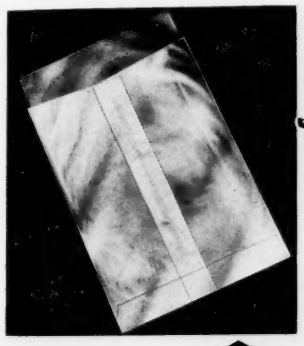
The VWS can be adjusted to produce bags of the extra length demanded by makers of spaghetti, noodles, breadsticks, etc . . . . *without requiring more material!*

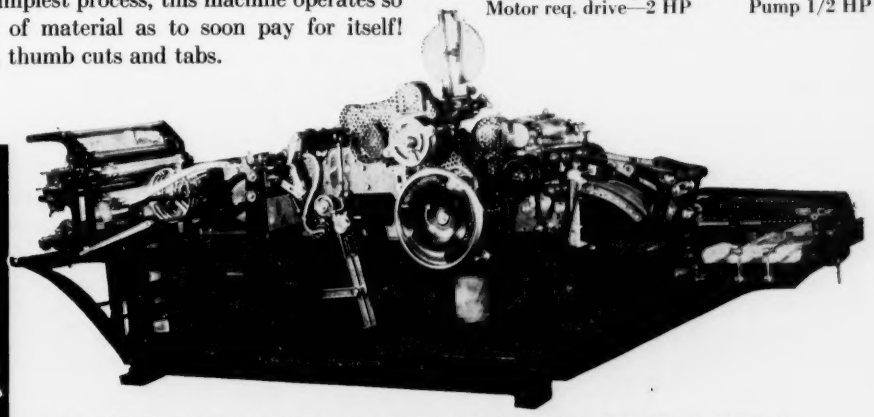
LABELS! A special attachment to the VWS makes possible at same time that bag is made, the gluing of attractive and fancy labels *inside* the bag . . . providing increased eye-appeal.

THE CHAMPION VWS

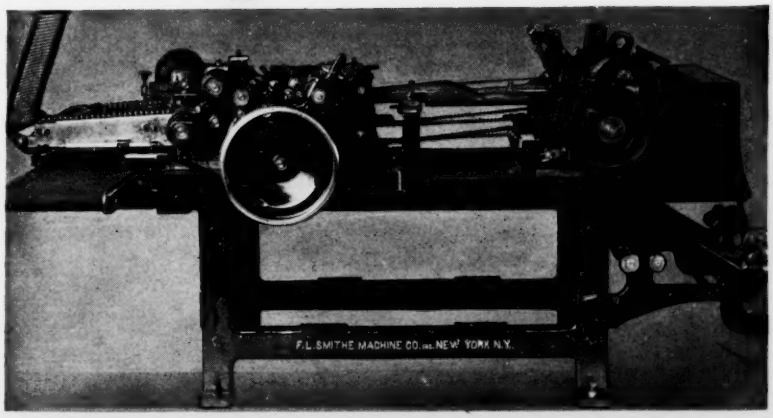
produces up to 5400 better satchel-bottom cellophane bags per hour! Reducing production to its simplest process, this machine operates so efficiently and so sparingly of material as to soon pay for itself! Mechanism for duplex webs, thumb cuts and tabs.

Range of Bags:
Length 6-1/2 to 15″
Width 3 to 8-1/2″
Floor area 2′5″ by 7″
Motor req. drive—2 HP Pump 1/2 HP





14,000 CELLOPHANE ENVELOPES PER HOUR WITH THE CHAMPION VW MACHINE

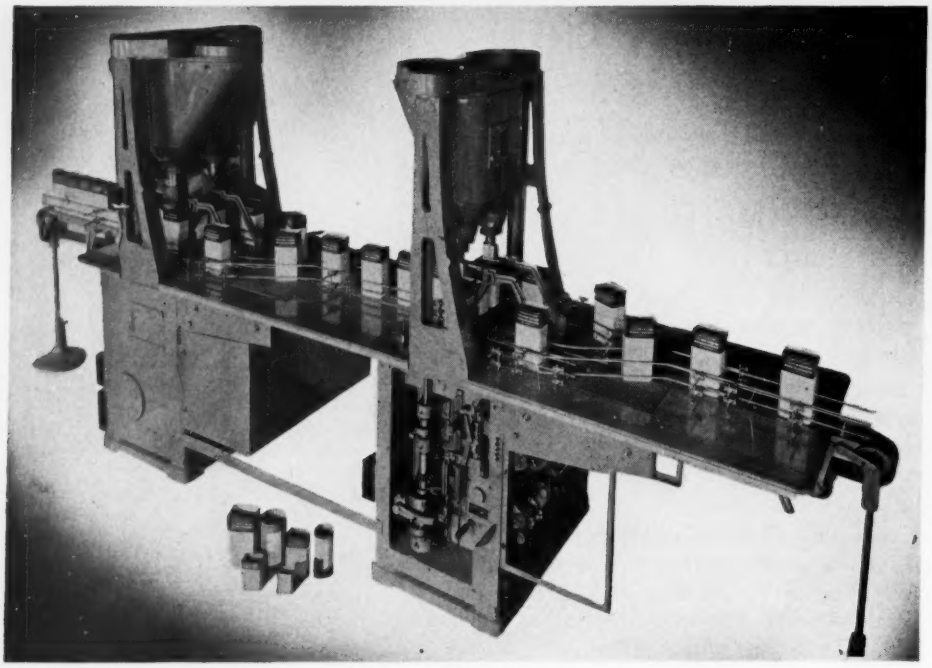


The high speed, high quality performance of this machine are all the advertising it needs. Handles all types of thin transparent materials. Fed from roll, it cuts out chips to form the side, seal and bottom flaps. Folds and glues the side flaps. Severs the web. Folds and glues the bottom flaps . . . delivering finest quality envelopes—9,000 to 14,000 per hour! YOU save in every way!

Range:
Blank length 4-1/2 to 13-5/8″
Folded width 1-3/4 to 10″

Since 1904 makers of outstanding machines for bag and envelope making

CHAMPION MACHINES
Manufactured by
F. L. SMITHE MACHINE CO., Inc.
633 West 11th Street NEW YORK, N. Y., U. S. A.



10. Four-station heavy duty filling machine. First two stations fill with bulk load; second two stations fill balance of load, checking by gross weight. Speed up to 60 containers per minute. Also may be used with complete fill at each of four stations for total speed of 120 packages per minute. Photo courtesy of Stokes & Smith Co.

minute up to 120 per minute are entirely practical with the many units available.

Gross weight weighing is next on our list and here, as the name implies, both the package and its contents are weighed, not just the product alone. You will realize, therefore, that any variation in weight of the package may affect the weight of the contents. Usually, however, this is not a serious variation with most types of containers. The flow of material from feed-hopper to package is controlled by the scale beam on one end of which the package rests during filling. When the right amount of material is weighed into the package the scale beam trips a shut-off which stops the flow of material instantly and indexes the package ahead to the next position. Usually gross weight weighing is done on two scale machines with the bulk load ($^{2}/_{3}$ to $^{9}/_{10}$) weighed at the first scale and the final extremely accurate weight delivered by a fine stream at a second scale.

Gross weight weighing is essential when accurate weighing of non-free-flowing commodities is necessary, and especially so if your package is beyond the small size classification. Another group of representative cases will help to show where gross weight weighing finds its place: Powdered sugar in cartons, cocoa in cans or canisters, malted-milk products in cans, prepared flour in cartons are a few examples. Speeds range from 10 per minute to 70 per minute.

A practice sometimes followed is to combine in one

11.



11. The "Elec-Tri-Pak" weigher utilizing electrically operated vibration plates to handle delicate products such as potato chips, crackers, etc., without injury. Photo courtesy Triangle Package Machinery Co.

12.



12. Automatic net weigher with automatic press for weighing, filling and pressing dry materials into paper bags. Courtesy Triangle Package Machinery Co.

TRIANGLE PACKAGE MACHINERY CO.

908 NO. SPAULDING AVENUE, CHICAGO

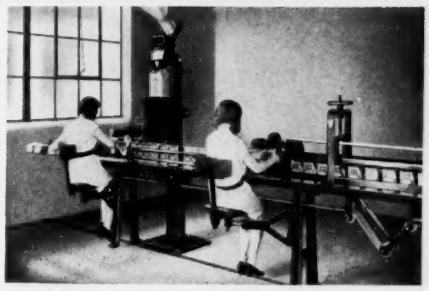
New York—50 Church St.
San Francisco—111 Main St.
Denver—1525 Wynkoop St.

Cleveland—5927 Euclid Ave.
Los Angeles—1501 W. Jefferson Blvd.
Foreign Office—44 Whitehall St., N. Y. C.

Cable Address: Triangleco, Chicago. *Code*—Bentleys

A COMPLETE LINE

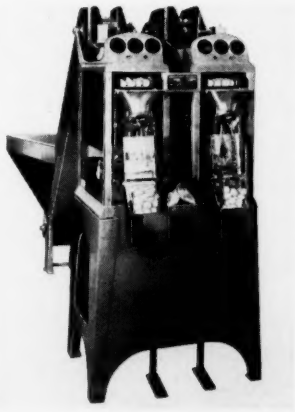
Triangle manufactures a complete line of more than 60 different models of modern automatic and semi-automatic equipment including; top and bottom carton sealers; net weighers; gross weighers; auger packers; filling machines; measuring machines; sacking scales; stokers; collector tables; conveyors; the Elec-Tri-Pak Weigher and special equipment. Triangle machines are designed to cut costs, increase production, produce a better job. Ask about Triangle's "Pay-As-You-Package" Plan and trial offers.



Class SA Carton Sealer with Class SB Automatic Net Weigher—packaging beans. Simple, efficient, easily adjustable, economical, it produces excellent work at a high production rate.

PROMINENT USERS

Here are just a few of the many prominent concerns who have found Triangle equipment to be the answer to their packaging problems: Quaker Oats Company; Swift and Company; Allen B. Wrisley Co.; Canada Packers Ltd.; Salerno-McGowen Biscuit Co.; Northrup King & Co.; General Foods Corp.; Queen Anne Candy Co.; Kansas City Macaroni and Importing Co.; Spratts Patent, Ltd.; Colgate-Palmolive-Peet Co.; Automatic Canteen Company of America; Smith Agricultural Chemical Co.

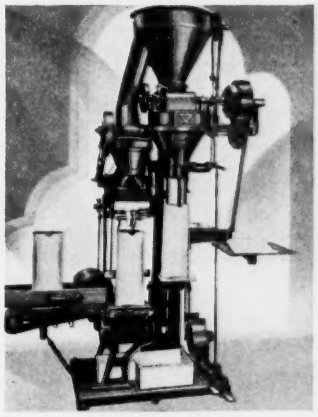


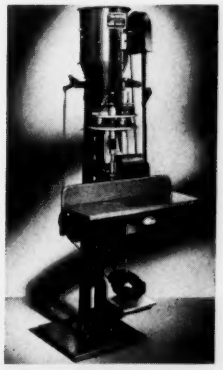
THE TRIANGLE-RAPP ELEC-TRI-PAK WEIGHER

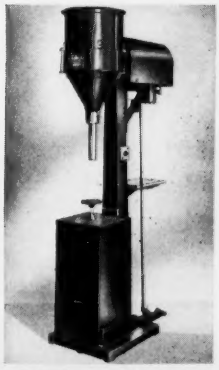
Left—This new machine, a revolutionary advance in packaging equipment, successfully handles marshmallows, potato chips, candies, noodles, cookies, crackers, seeds, dog food, bolts, nuts, screws, etc. The operating principle, entirely different from that of any existing packaging machine, is based on electrically vibrated, dial-controlled feed plates.

MODEL SN-A COMBINATION AUGER PACKER AND FINISHING WEIGHER

Right—For filling, packing, and weighing hard wheat flour, soft wheat flour, wheat paste, malted milk powder, arsenate of lead, insecticides, powdered chemicals, etc., into bags, cans or cartons. Especially well suited for tight packing and accurate weighing—heavily constructed for lifetime service.







MODEL SP-A AUTOMATIC FILLER

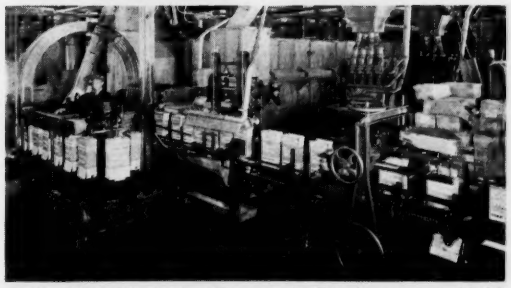
Right—For rapid and accurate filling of small amounts of powder, granules, etc., into any type container. Production—30 to 60 discharges per minute. Handles with accuracy such sluggish materials as summer drink powders, pudding powders, gelatin and ice cream powders, cake icing powders, ground or whole spices, borax, alum, sulphur, powdered drugs and chemicals.

NEW MODEL U AUGER PACKER

Left—For packing spices, cocoa, baking powder, chemicals, drugs, face and talcum powders. Production—15 to 40 packages per minute. Range—1 oz. to 5 lbs. extremely accurate. Unequalled for quick and easy cleaning in changing products.

CONTAINERS—MATERIALS

Triangle machines will fill cartons, cans, bottles, bags and envelopes with practically any dry product including powders, granules, flakes, crystals. Combinations of machines for filling, weighing, sealing, etc., provide the necessary flexibility to meet almost any requirements.



At the Colgate-Palmolive-Peet Company, this Triangle equipment—Model B Automatic Bottom Scales—Model M-1 Automatic Two Stage Gross Weigher—Model S Automatic Top Sealer—weigh, fill and seal soap flakes in 18 oz., 2½ lb. and 5 lb. cartons.

SPECIAL PROBLEMS

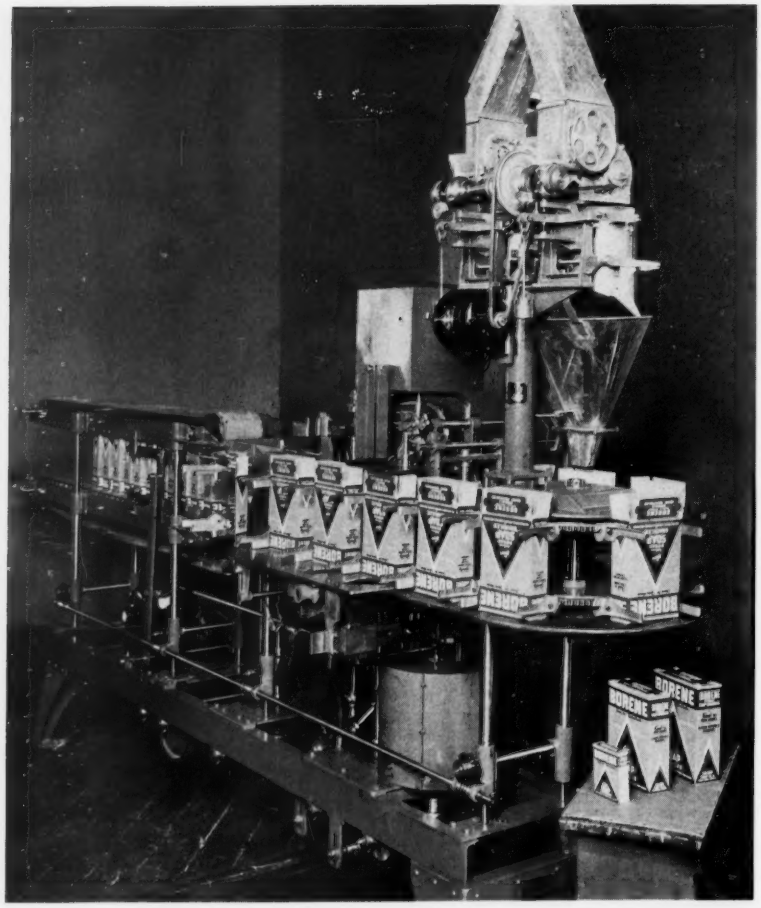
Triangle engineers will gladly assist you in solving special packaging problems. Feel free to call upon them without obligation.

SPECIFICATIONS

For specifications on Triangle machines, send complete information on your packaging needs. Triangle will advise the equipment to best handle the job.

PIONEERS IN THE DESIGN AND MANUFACTURE OF SIMPLIFIED PACKAGING MACHINERY

XUM

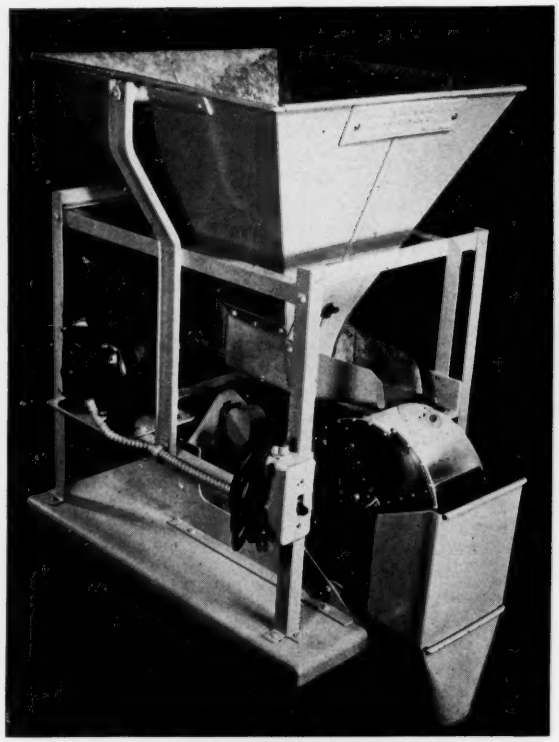


13. Automatic adjustable top and bottom carton sealer with two-unit power feed net weigher. Photo courtesy J. L. Ferguson Co.

14. Net weighing and filling machine using vibrating feed and a tripping wheel balanced on a scale. When the desired weight of product has been deposited into a section of the wheel, the movement of the balance causes the wheel to revolve a quarter-turn, discharging the product into the container. Courtesy Amsco Packaging Machinery, Inc.

machine the two principles of gross weighing and measuring. The clearest explanation of this method can be given by describing one commonly used machine of this type, namely, the bag-flour packer. As in any filling or weighing task, the natural objectives are maximum speed and accurate weights. Here there is the additional requirement of a tightly packed bag. The latter factor makes straight gross weighing impractical but by resorting to a worm packer for the machine's first station, the greater part of the bag contents can be packed in tightly at reasonable speed and without weighing. To get weight accuracy it is only necessary to finish off the filling at one or two subsequent stations by directing a fine stream of material into the bag while it rests on a platform scale.

Finally, there is the class of package filling and weighing termed "net weight weighing." With this system the package contents are weighed separately before being transferred to the package. In order to make use of this method the first essential is that your product be either free-flowing or at least semi-free-flowing. Net weight weighing cannot be efficient if the material is at all sticky or tends to build up and cling to feed hopper or funnel surfaces. Where the nature of the product will permit the use of this method it is usually true that the weights will be extremely accurate. Care should be



XUM

THE LIQUID CARBONIC CORPORATION

Manufacturers of

O. & J.
Automatic Labeling Machines

National
Semi-Automatic Labeling Machines

General Office: 3100 S. Kedzie Ave.
CHICAGO, ILLINOIS



THE COMPANY

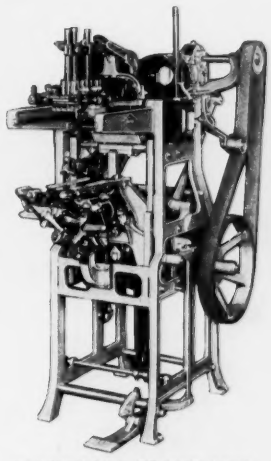
In the fall of 1938 The Liquid Carbonic Corporation celebrated the fiftieth anniversary of its founding in 1888.

Founded originally for the manufacture of carbonic gas in steel cylinders the Company branched out in the early 1900's into the building of equipment for beverage manufacturers. The Company has kept pace with the ever growing production demands of this industry by continually improving machinery units. Today, hundreds of plant installations attest the quality and efficiency of the Liquid line of machinery.

Wherever speed and accuracy of labeling is required, Liquid O. & J. or National Labelers supply the answer.

TWENTY-THREE LIQUID BRANCHES ASSURE "NEXT DOOR" SERVICE EVERYWHERE

NATIONAL SEMI-AUTOMATIC LABELING MACHINES



NATIONAL STANDARD LABELER

The National "Standard" Labeler is a hand fed or semi-automatic machine. With it practically any size of bottle may be labeled with either body or neck labels or both.

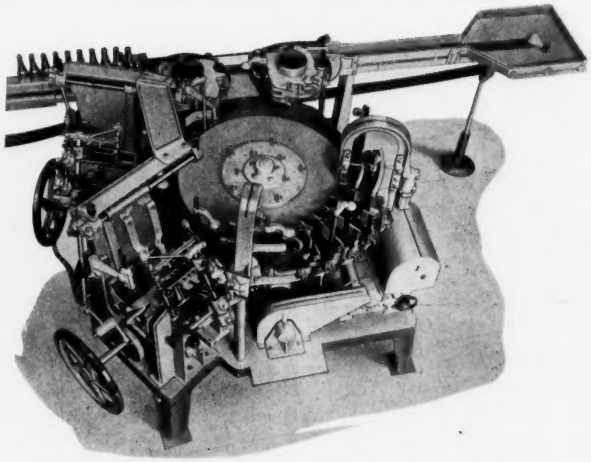
When equipped with a foiling attachment, foil may also be applied.

This machine has a capacity of 40 containers per minute or 1,600 dozen containers per 8-hour day.

The National "Midget" Labeler is a smaller and simpler model of the "Standard" labeler shown on this page. It will affix a single label on anything from a 1/2 oz. vial up to a quart bottle, provided the labels do not go more than half way around the bottle.

Capacity: 40 containers per minute or 1,600 dozen containers per 8-hour day.

O. & J. AUTOMATIC LABELING MACHINES



O. & J. "DUPLEX" AUTOMATIC ROTARY LABELER

The O. & J. "Single" Automatic Rotary Labeler is a smaller model of the "Duplex" shown on this page. It has a capacity of 80 containers per minute or 3,200 dozen containers per 8-hour day.

There are eight heads and top grips for receiving and holding the bottles. By reason of these eight heads the machine operates at a comparatively slow speed.

The O. & J. "Duplex" Automatic Rotary Labeler is a large capacity machine, completely automatic. It will handle 120 containers per minute or 4,800 dozen containers per 8-hour day.

The operation of this machine is similar to that of the "Single" machine described above, the extra capacity being obtained by having ten heads, instead of eight on the turntable, and two points at which labels are affixed to the containers.

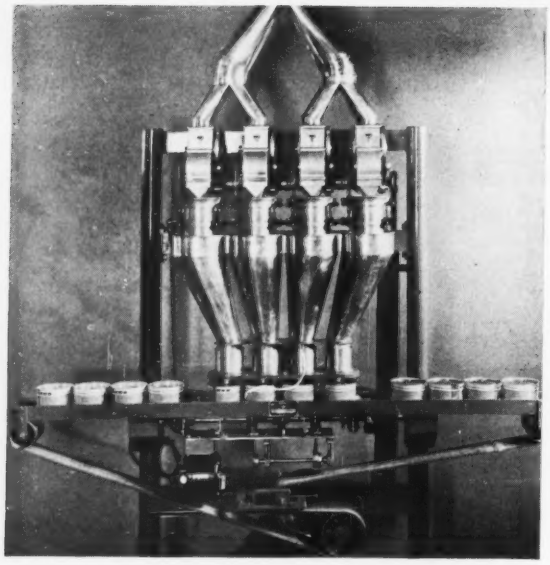
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WINNIPEG, MANITOBA, CANADA

XUM



15. Straight line automatic net weigher with power feed filling four packages at a time. Speed 40 to 45 per minute. Courtesy J. L. Ferguson Co.



16. Unit type scale in combination with rotary filler for fibre can filling. Courtesy Consolidated Packaging Machinery Corp.

used in selecting the net weight method as it is not always the most satisfactory, even though accurate weights might be possible from a machine standpoint.

Again, a group of typical applications will perhaps be helpful. Among tasks being handled successfully by net weight are: Coffee in cans, bags or cartons, salt in cartons or bags, tea in canisters or cartons, rolled oats in round or rectangular packages, etc. Speeds range from 10 per minute to 100 per minute.

All of the foregoing discussion deals mainly with dry product filling and weighing, but of course there are other important tasks which deserve mention to complete the picture of packaging methods in general.

Be sure that your package, whether a carton or some other type, is made sufficiently large to permit rapid machine filling or weighing of the required volume of material. At the same time make certain that it isn't too large. You don't want your consumer to receive a package that seems to be half empty. If your package is a folding carton ask your machine builder to check it for correct machine handling construction. Proper scoring, right weight cardboard, correct shape, strong side seam at right location, are only a few points to keep in mind. The folding carton is one of the most widely accepted types and at the same time the equipment available for making it up in various forms is offered in a most complete range of sizes, types and capacities for every manufacturer's needs.

Because the folding carton is particularly well suited for packaging dry products there are a number of styles which have been developed. Careful checking is advised bearing in mind the nature of the product and the style which will be most convenient for the consumer. The seal-end carton, with extended flaps, is most popular for products which are liable to sift, but is difficult to seal by hand. Reverse tuck and straight tuck cartons are readily sealed by hand, as well as by machine, and offer ready examination of the product prior to purchase. For more complete data on carton styles see pages 68 et. seq.

The company whose requirements are not large can install an inexpensive hook-up which will help to lower packaging costs. As need demands more production, this first installation can be replaced piece-meal by more automatic and faster units. Thus an output as low as 5000 per day will justify packaging equipment of some sort being installed.

With folding cartons there are certain basic operations to consider. For some carton packages all will be needed, while for others only part of these are necessary:

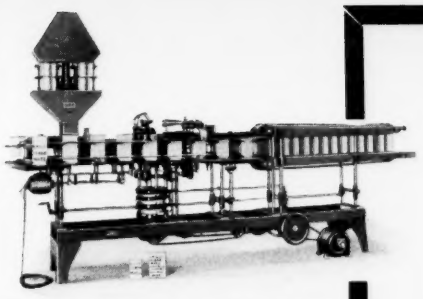
(1) Carton feeding and forming
(2) Bottom sealing
(3) Lining
(4) Filling or weighing
(5) Carton closing
(6) Wrapping

The usual practice is to handle each of these tasks on an individual unit but in some cases it is practical to take care of several on a combination machine.

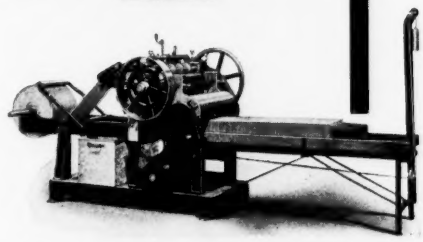
The photographs reproduced in this article show how a complete packaging job might be handled with only one machine, or on the other hand require a number of units in the hook-up.

The correct planning of packaging equipment installations is an important matter. Another section of the Packaging Catalog gives some recommendations and shows practical layouts. For maximum efficiency in your packaging room consult with packaging engineers who have worked out many of these installations.

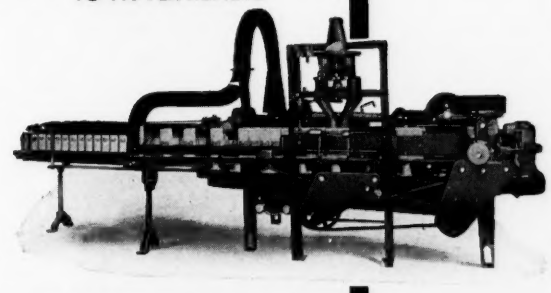
Wonderful strides have been made in the improvement of packaging machinery during the past few years. You may be operating equipment that is giving excellent results but the chances are that if it is even ten years old it is far from the most efficient available.



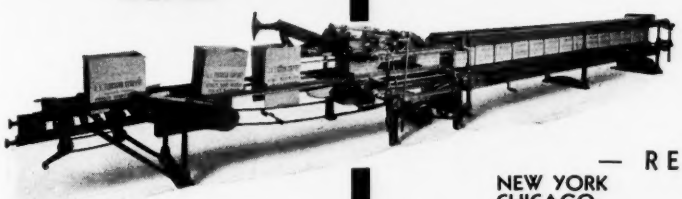
30 PER MINUTE BOTTOM AND TOP CARTON SEALER WITH AUTOMATIC BULK AND DRIBBLE NET WEIGHER. ONE OPERATOR ONLY REQUIRED



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Hundreds of manufacturers, both large and small, have come to PACKOMATIC for low cost production machines of practical, simple and efficient design.

There's a PACKOMATIC machine for weighing and filling almost any known dry product into any type container—for making paper cartons and paper cans—for sealing cartons—for packing and sealing shipping cases. Fully automatic or semi-automatic machines for small, medium or high speed production.

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CHECK-WEIGHING SCALES

by K. B. NEFF*

Scales are classified, relative to use, under two general groups—first, scales for weighing unknown quantities or catch weighing and, second, scales for weighing pre-determined quantities. For each of these classifications, it is important that a scale be selected which is designed for and adapted to the intended use.

More and more of the world's commodities are being marketed in pre-determined packages and vast strides have been made in developing packaging equipment and containers designed to appeal to the consumer.

In considering this subject, we might include the various types of packaging operations, such as hand filling, semi-automatic packaging and completely automatic packaging. In all of these operations, the scale is still the controlling element. It is easy to obtain the first 97, 98, or even 99 packages from a given amount of bulk; the problem arises in getting the last 1, 2, or 3 packages, in which the profit lies.

For smaller packages ranging from a fraction of an ounce up to 100 pounds, the balance type of scale is most commonly used for check-weighing. The development of an over-and-under weight indicator has made the balance type of scale especially well adapted for production and check-weighing of packages up to 100 pounds. This type of scale can be built to a high degree of sensitivity, is not seriously affected by machinery vibration and weighs correctly in any normal out-of-level position. The visible indication magnifies weight errors and makes it possible for any class of labor to give accurate weights. The scale is simple in structure, does not require a great deal of service and simplifies the process of weighing and of supervision.

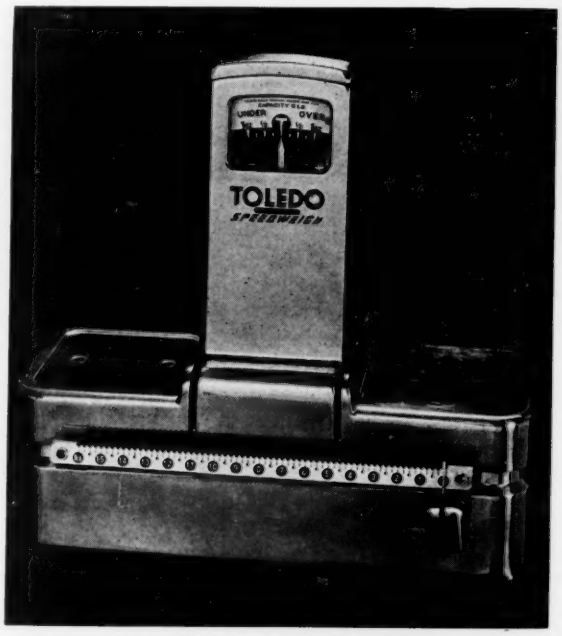
There are a number of different model and types of over-and-under weight balances, designed and constructed to take care of various commodities and packaging operations. For floor or low bench operations, a top reading dial can be provided. In some scales, the tower is inclined, thus setting the dial at the normal reading angle and relieving strain on the operator. In other types, the position of the indicator is so arranged as to greatly increase the speed of the scale. For unusual corrosive or acid conditions, special finishes are provided which lengthen the life of the scale.

In all of these various types, the scale dial shows the zero reading, which indicates the exact weight point. The dial may also be provided with weight graduations or tolerance marks. Where graduations are used, the operator or inspector is able to determine the amount of weight error in the package, thus affording a guide in adjusting the filling equipment. If the scale is used for checking different commodities, the dial may be equipped with adjustable, mechanical tolerance markers.

Just as it is important to select the proper type of scale for packaging or check-weighing, it is also important to select a scale of the proper capacity for the package being weighed. For instance, a scale which is built with sufficient sensitivity for weighing 10-lb. packages, would not have the necessary sensitivity for 1-oz. or 4-oz. packages. A $^1/_{32}$-oz. over-weight on a 5-lb. package would not be a serious loss, but a similar under-weight on a 2-oz. package would be serious.

For check-weighing larger packages, some type of beam scale or a dial scale is generally used. A recent development, which tends to make the beam scale well adapted as a packaging scale, is that of an over-and-under weight indicator. This serves the same purpose to the beam scale as the over-and-under weight dial does to the balance scale. This indicator provides a positive weight control of the package and, at the same time, keeps a constant check on the scale itself. If any errors develop in the lever system of the scale, the indicator will immediately disclose this fact.

In hand filling, it is essential that all packages be



A pre-determined weight scale with a claimed accuracy of 1/64th of an oz. or 1/1000th of a lb. The indicator is controlled by a hydraulic shock absorber and the beam is notched at each graduation for speedy poise setting. Photo courtesy Toledo Scale Co.

* Secretary and Treasurer, The Exact Weight Scale Co.

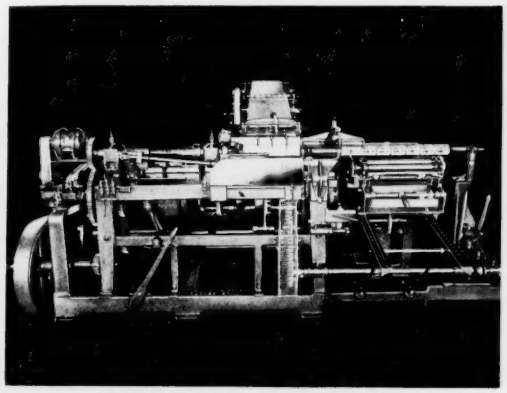
THE "SWING" IS TO FIBRE BODY CANS

. . . and here are the reasons . . .

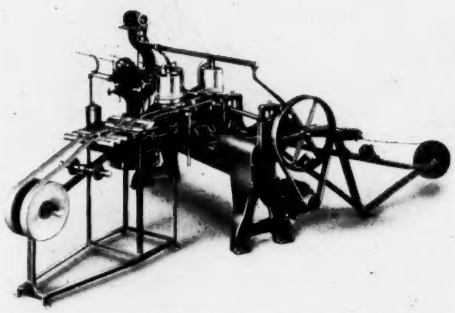
—*Improvement* in Package Design!
—Show *Definite Savings* on PRODUCTION COSTS!
—Provide *greater* DURABILITY!
—Offer a greater variety of shapes and sizes which effect worthwhile *Savings* in packing and space on dealer's shelves.
—And most important of all, *Real* SALES APPEAL!

Knowlton Fibre Can Machines are helping thousands of producers of packaged goods to a generous share of EXTRA SALES and EXTRA PROFITS. They can do the same for YOU!





Automatic Convolute Fibre Can Winder



Knowlton Spiral Tube Winding Machine

To Send Out the Nation's Goods "Better Dressed" is the Job of These KNOWLTON FIBRE CAN MACHINES

These new Automatic Fibre Can Machines are the result of Knowlton's Fifty Years' experience in the packaging equipment field and incorporate a host of special features which are acclaimed as revolutionary by manufacturers and packers alike. The part which these KNOWLTON Machines play in increasing sales (through Package Design) is a mighty important one and is a task which they perform in an amazingly simple and economical manner.

The KNOWLTON AUTOMATIC CONVOLUTE WINDING MACHINE, for instance, accepts paper stock from the roll and *automatically* produces fibre can bodies in round, rectangular, or irregular shapes—applies the adhesive and lithographed labels and delivers the completed can bodies ready for the seaming on of the tin tops and bottoms. This machine is equipped with an automatic slitting and labeling attachment which permits production of from *one* to *four* complete can bodies at a time during the winding process. It produces fibre cans up to 16″ in height or multiples thereof.

The KNOWLTON SPIRAL TUBE WINDING MACHINE is another notable example of modern efficiency. It is the *fastest* and most economical machine for winding paper tubes or cores ranging from 2 to 19 ply and its product is unsurpassed for tube strength, accuracy and high quality in the making of food containers, cosmetic boxes, tissue cores, heavy mill cores, mailing tubes, dry battery cores, spools, etc.

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2. Hand operated check-weighing scale. Courtesy The Exact Weight Scale Co.

weighed. This requires the use of a scale which provides close accuracy, speed and a minimum of strain on the eyes and arms of the operator.

Some filling machines work on the volumetric principle. Even in these, it is important that the finished packages be check-weighed, because a change in the texture of the material might result in an incorrect weight in the finished package. Many of the packaging machines are controlled by a scale mechanism built right into the machine itself.

All automatic fillers are equipped with regulators to increase or decrease the flow of material, in order to permit the operator to make adjustments necessary to correct weight errors disclosed by the checking scale. Either the volumetric or the weight-controlled, automatic filling or packaging machine is only as accurate as the independent checking scale against which the finished package is checked.

Quite often the check-weighing is done in a dusty location where quantities of finely pulverized material might collect on the scale. In these instances, especially designed scales are available (equipped with grid platforms, weight covers, etc.) to protect the accuracy of the scale during operation.

In some filling operations, no automatic filling device is provided, but the bags or containers are filled to something less than capacity, and then placed on the "over-and-under" scale. Material is then sifted into the container until the weight is brought up to the predetermined amount.

For handling coarser materials in bags, a special bagging scale is provided. The bag is held in position on the scale by a special clamp, and the flow of material into the bag is indicated on the scale dial. The cut-off is made by a hand-operated valve. This scale is, of course, of the dial type, and the weight indicated on the dial serves as an automatic check-weight for the bag.

Each plant usually has its own method of determining the number of packages to be check-weighed. The tendency, however, is to check-weigh packages more frequently in order to provide uniformity in the weight of the finished packages. As a final precaution to insure correct weight packages, a survey is often made of the finished packages in the stock room. For this purpose, a check sheet is provided, having a column for over-weight, under-weight and correct packages.

From this check sheet, the average over-weight or under-weight error is determined. The seriousness of the error depends somewhat upon the size of the package. For example, an over-weight of $^1/_{16}$ oz. on a 5-lb. package would represent only .08 per cent loss, whereas on a 2-lb. package the same over-weight would represent 3.13 per cent loss. It is obvious that such a loss on a small package would have a serious bearing on the final profit and loss figure. The weight errors are often shown on a specially designed graph, thus making the weight condition of the packages visible at a glance.

BOTTLE CLEANING EQUIPMENT

To prevent contamination of their products and to comply with pure food and with health laws, many manufacturers find it necessary to clean bottles prior to use. Those using all new containers desire to remove lint, dust and any glass chips that may enter the container between the time of its manufacture and the time of its use in the packaging plant. Those using a returned bottle—as in the milk and beverage industries—of course find thorough cleaning of such containers an absolute essential. Cleaning equipment is of three general types: air cleaners, rinsing machines and soaking, rinsing and washing machines.

The two former types are recommended only for the thorough cleaning of new glassware not requiring sterilization at the point of filling. When second-hand or returned bottles are being used, only a thorough soaking and washing in sterilizing solutions, followed by a careful drying, can be recommended.

Air Cleaning

Where glassware comes directly from the factory, cleaning by compressed air has been found satisfactory in numerous plants, particularly provided the glassware has not been exposed—outside of closed shipping containers—to grime or grease.

Air cleaners of both hand operated and automatic types are available. In the non-automatic type, the operator

BOSTON-BLISS-LATHAM

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FOR ASSEMBLING AND SEALING

CORRUGATED AND FIBRE SHIPPING CASES

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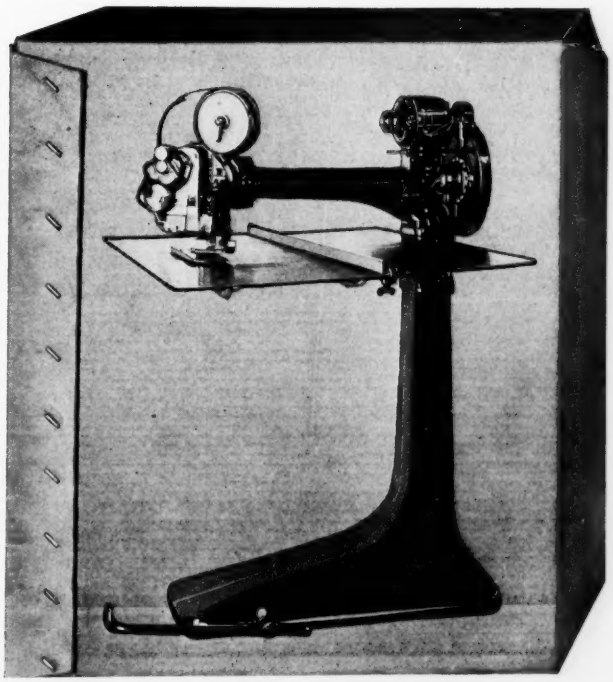
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BOX STITCHERS



Fig. 1. Bliss Box Stitcher

BLISS HEAVY DUTY BOX STITCHER

The Bliss Box Stitcher is built for heavy duty work on all grades and thicknesses of boxboard used for corrugated and solid fibre shipping containers; also suitable for all kinds of telescope containers, suit boxes, folding boxes, set-up boxes, cracker caddies, display boxes, etc. Adaptable for stitching paper bags, bag handles, sheet metal and various other specialties.

The Bliss Box Stitcher will form and drive as many as 500 stitches per minute. The only limitation on production is the ability of the operator to handle the stock through the machine. Speed of machine may be varied to suit the nature of work by changing the motor pinion.

Clearance between the stitcher head and clinching anvil is $1^5/_8$″, a valuable feature facilitating insertion of heavy work and aiding visibility.

The stitcher may be equipped with tables, gauges or other fixtures to guide work and assist in high speed operation, and in handling specialty work.

This machine is recommended for plants having continuous steady production of all types of containers and any work that demands the sturdiest type of stitching equipment.

SPECIFICATIONS. Bliss 90° or 45° Stitcher Head; uses any of the standard ribbon and Hybar wires, also other flat and round sizes. (See page 9 for complete description of Bliss Heavy Duty Stitcher Head, and wire data.)

Three throat lengths—15″, 25″ or 33″. Extra long throat lengths up to 48″ may be supplied, as ordered.

Standard Heights, 40″, 45″, 50″, from the stitching point to floor.

Motor, $^1/_4$ HP any desired electrical specification.

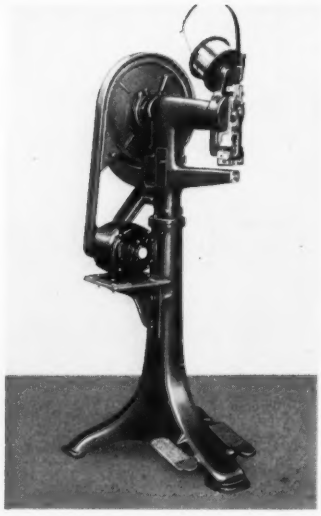


Fig. 2. Boston No. 10 Box Stitcher

BOSTON LIGHT DUTY BOX STITCHER

The Boston No. 10 Box Stitcher is a light model machine equipped with the Boston No. 26-D Narrow Stitcher Head. Clearance between stitcher head and clincher anvil is $^3/_4$″. Wire used is 21 x 25 flat, 21 to 25 or 25 to 28 round, and work up to $^1/_4$″ in thickness may be stitched. Crowns may be furnished for $^3/_8$″ or $^1/_2$″. Height from floor to stitching point is 36″.

It is adapted for light stitching operations, either on boxes or flat work such as bag sealing and attaching articles to cards. When built to drive a pointed stitch and equipped with a table it is much used for attaching tickets to hosiery and other textile articles.

Distance from stitch to inside edge of frame is 10 inches.

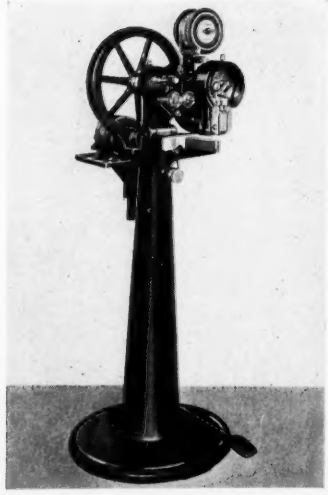


Fig. 3. Latham No. 20 Box Stitcher

LATHAM No. 20 BOX STITCHER

The Latham Box Stitcher, equipped with Latham Roll-Feed Head, is a moderate priced machine designed for stitching the regular run of boxes, containers and bags used by mail order houses, clothing, rubber and metal trades manufacturers, and similar industries. It will stitch any box requiring an arm length of 12 inches or less.

The machine uses .020 and .017 ribbon, or No. 20 x 25 bookbinder's wire, and stitches at speeds up to 300 per minute, with standard $^1/_2$″ crown.

Machine is simple in construction with few moving parts.

SPECIFICATIONS. Throat length 12″; standard height 43″ from stitching point to floor; capactity $^3/_8$″ in thickness. Motor, $^1/_4$ HP any desired electrical specifications.

BOSTON ADJUSTABLE MULTIPLE HEAD STITCHER

Boston Adjustable No. 27 Multiple Head Stitcher uses No. 15 Type Heavy Duty Boston Stitcher Head. Throat, 15 inches. This machine may be equipped with two or three heads, as required by the nature of the work. Heads are adjustable sidewise, with a minimum spacing of 3″ from center to center, and maximum spacing of 16 inches. Uses $^1/_2$″ crown stitch, and stitches work up to $^1/_2$″ in thickness. Drives all sizes of ribbon and Hybar wire, also other flat and round sizes. Table is equipped with adjustable back and side gauges for registering work.

Used for stitching suit boxes, cartons and other types of folding or set-up boxes, and for any other stitching requiring two or three stitches uniformly spaced.

Available with solid clincher or moving clincher as ordered.

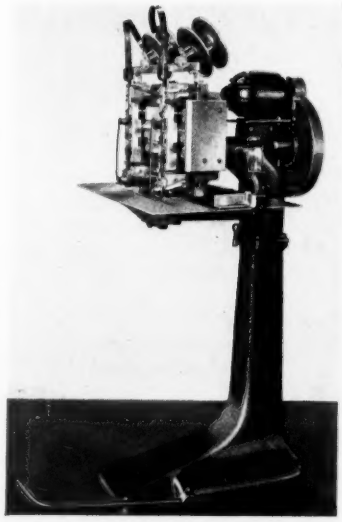


Fig. 4. Boston No. 27 Multiple Head Stitcher

DEXTER FOLDER COMPANY
330 West 42nd Street, New York, N. Y.

BOX STITCHERS

BOSTON NO. 22 MULTIPLE HEAD STITCHER

The new Boston No. 22 Multiple Head Stitcher is a moderately priced machine for stitching bags, small box ends and other operations where two stitches are required. Among the advantages of this machine are rapid stitching (two stitches driven at each operation), accurate placing of stitches for appearance, and ready accessibility for making adjustments.

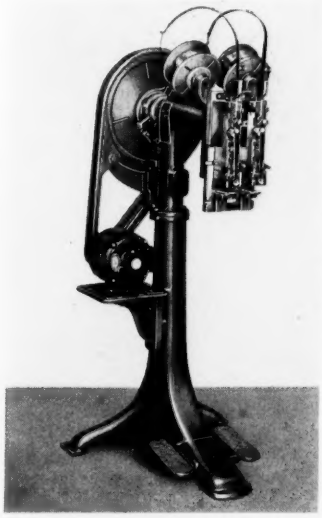


Fig. 5. Boston No. 22 Box Stitcher

Two Boston No. 26-D Narrow Stitcher Heads mounted on a short rail provide for placing the stitches as close as $1^{7}/_{8}$ inches from center to center, and as far apart as 5 inches. The distance between the stitches can be varied as desired up to the limits mentioned.

The throat length is $2^{1}/_{4}$" and clinchers are of the solid type. Movable clinchers or short blade anvils can be furnished on order. Heads will handle wire No. 21 x 25, 20 to 25 round, or 25 to 30 round, with $^{3}/_{8}$" or $^{1}/_{2}$" crown. Special crowns of $^{1}/_{4}$" and $^{5}/_{8}$" may also be obtained. Motor, $^{1}/_{6}$ HP.

LATHAM CORNER STAY STITCHER

The Latham Corner Stay Stitcher places a right angle stitch around the corner of the box. Corner stitching makes a strong box, neat in appearance, and is a practical, economical method of corner sealing. Illustration of corner stitching is shown below.



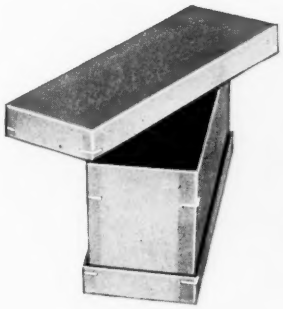
Fig. 6. Latham Corner Stitcher

The machine is used extensively for hardware packing boxes, cracker caddy covers and boxes for other purposes; also for strengthening the higher grade set-up boxes which are later covered with paper. Operating speeds on such work as caddy covers are frequently as high as 20 or more complete covers per minute. Clinching arm is equipped with spring gauge for accurate registering of the stitch. This machine is considered the most successful corner stitcher throughout the trade. Straight cut-off or pointed stitch is optional.

Machine is equipped with Latham Roll Feed Stitcher Head which drives a stitch measuring $^{1}/_{2}$" from corner of box to clinch. Distance from stitch to inside of frame is 12". Wire used is .017 to .020 flat ribbon, or No. 20 x No. 25 size.

Motor, $^{1}/_{6}$ HP any desired electrical specifications.

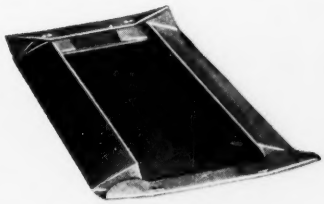
EXAMPLES OF BOX STITCHING



Hardware Box, stitched on Corner Stitcher



Hardware Box, stitched on Box Stitcher



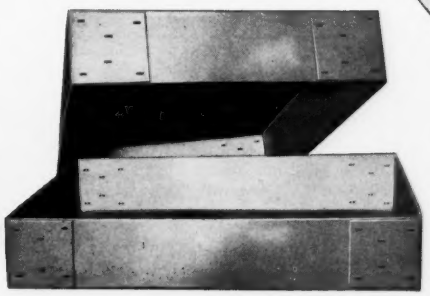
Folding Suit Box, stitched on Box Stitcher



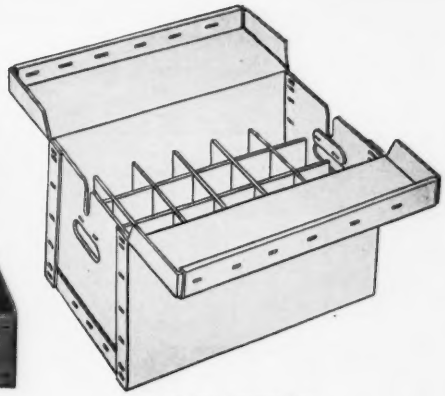
Display Box stitched on Box Stitcher



Shopping Bag, stitched on Box Stitcher



Telescope Box



Bliss Type Beverage Box

BOTTOM STITCHERS



Fig. 7. Bliss Bottom Stitcher

BLISS BOTTOM STITCHER

The Bliss Bottom Stitcher, equipped with the Heavy Duty Stitcher Head, is recommended for stitching the bottoms of regular slotted containers, Bliss Collapsible boxes and many other purposes, where maximum production is required.

The machine operates at speeds up to 300 or more stitches per minute and handles all the usual sizes of shipping containers. No adjustments are required for any size of container within its range. Production varies from four to eight cases per minute.

For medium sizes of boxes the $1^{5}/_{8}$" clearance between post and stitcher head allows sufficient space for convenient handling without tilting the post; for large size boxes the post is moved forward by means of a foot lever to aid placing the box in position for stitching. The head of the post, which contains the clincher, may be adjusted up or down with a few turns of the wrist. A heavy spring is mounted in the post permitting clincher to accommodate variations in the thickness of stock. Adjustments are provided to take up any wear in the post at the joint.

The rugged construction of the Bliss Bottom Stitcher assures long service on heavy duty work.

SPECIFICATIONS. Built in two sizes: 15" or 25" throat.

Motor, $^{1}/_{4}$ HP any electrical specification desired.

Height to clinching point from floor 45" or 50".

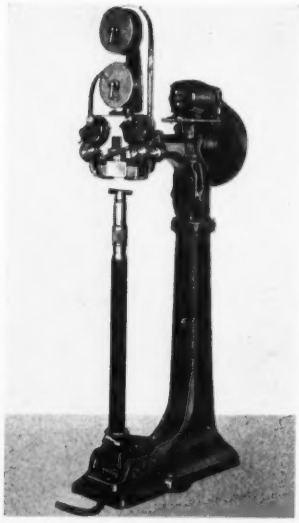


Fig. 8. Bliss Duplex Bottom Stitcher

BLISS DUPLEX BOTTOM STITCHER

The Duplex Head Bottom Stitcher drives two stitches simultaneously, enabling an increase in production of 50% to 60% over what is possible with single head stitchers, without increasing labor cost. This new bottom stitcher is proving to be a popular machine in plants handling large quantities of containers, both of the type having outside flaps to meet, as well as lap.

It is recommended for the following products: canned goods, bottled goods and other food products; shoes, tissue paper, soap and any commodity packed in quantity.

One operator can stitch 6 to 12 boxes per minute. With two operators (one folding and one stitching) as many as 18 boxes per minute can be stitched.

Machine is equipped with Bliss Heavy Duty Duplex Stitcher Head, and post with double clinching bar, spaced for driving stitches $2^{1}/_{2}$" apart (the spacing required by the Railroad Classification). One pedal controls operation of post and stitching head, reducing time to insert and remove the box. No adjustments are required for various sizes of boxes. Corrugated or solid fibre boxes may be stitched with equally satisfactory results.

SPECIFICATIONS. Built in one size with 15" throat length.

Height to clincher 45". Drives up to 600 stitches per minute.

Motor, $^{1}/_{3}$ HP any electrical specification required.

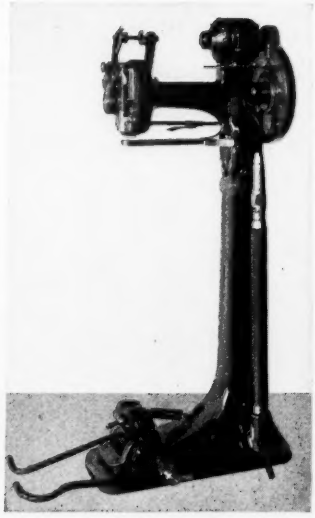


Fig. 9. Bliss Box and Bottom Stitcher

BLISS COMBINATION BOX AND BOTTOM STITCHER

This is a general purpose machine which enjoys a wide use in a great variety of industries as it can be used for regular box stitching, and also for bottom stitching of containers. It is especially popular in plants using both Bliss No. 4 boxes and regular slotted containers. The former can be assembled on the box arm; the latter can be bottom stitched on the post.

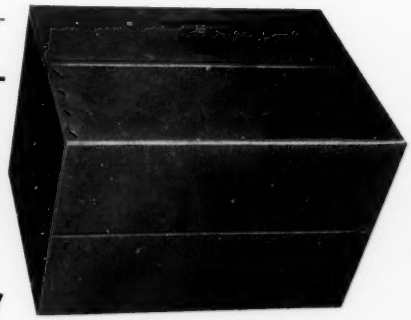
Output on this machine is the same as that obtained on the Bliss Box Stitcher or the Bliss Bottom Stitcher.

When used for box stitching the post is removed and placed in a convenient socket on the pedestal, and the box arm placed in position; when used for bottom stitching the box arm is folded down and post placed in operating position. Change can be made in one minute. A small table may be attached to the box arm if desired.

The machine is built in two sizes, with 15" and 25" throat, respectively. The Bliss Heavy Duty Stitcher Head is used.

SPECIFICATIONS. 300 stitches per minute. Height to clincher 45" to 50". Motor, $^{1}/_{4}$ HP any electrical specifications required.

Regular Slotted Containers with the bottoms wire stitched are stronger and more rigid than when sealed with glue or tape. Especially when canned goods, bottled goods and similar products are packed and placed in storage, wire stitching is more secure and dependable because it is not affected by either moisture or heat. When fastened by wire stitching the containers remain fastened. Labor cost of bottom stitching is less than that of hand gluing or taping, for the reason that one person can stitch a great many more containers per hour on the Bliss Bottom Stitcher. The cost of wire stitches is nominal—only four to five cents per 1000 stitches.



Regular Slotted Container, showing bottom stitched on Bottom Stitcher

DEXTER FOLDER COMPANY
330 West 42nd Street, New York, N. Y.

BOTTOM AND COMBINATION STITCHERS

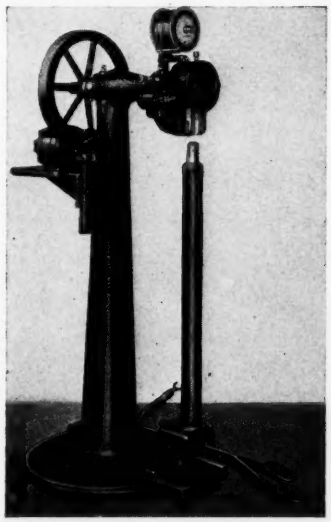


Fig. 10. Latham No. 22 Bottom Stitcher

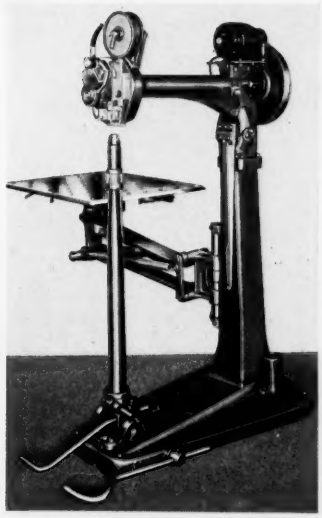


Fig. 11. Bliss Top and Bottom Stitcher



Fig. 12. Bliss Top and Bottom Stitcher

LATHAM No. 22 BOTTOM STITCHER

The Latham No. 22 Bottom Stitcher is a moderate priced machine equipped with Latham Roll Feed Stitcher Head, and is used for stitching the bottoms of regular slotted containers and other types of boxes, either corrugated or solid fibre. Handles any size of box up to 24″ wide without adjustment for size.

Clincher is adjustable for thickness of work, by turning knurled sleeve at top of post.

The stitching post moves forward for receiving and removing the box, a convenient aid when stitching large sizes.

SPECIFICATIONS. Uses .020 and .017 ribbon or No. 20 x 25 bookbinder's wire. Capacity up to $^{3}/_{8}$″ in thickness, with $^{1}/_{2}$″ width crown. Height, 43″ from stitching point to floor.

Motor, $^{1}/_{4}$ HP any desired electrical specifications.

BLISS COMBINATION TOP AND BOTTOM STITCHER

This combination machine is used both for bottom stitching and top sealing. It is intended for plants whose production does not warrant installation of separate Bottom and Top Stitchers.

It is much used in such industries as shoe manufacturing, meat packing, and shipping of food, shingles, rubber goods, chemicals, etc. Output is the same as that obtained on the Bliss Quick Lift Top Stitcher or the Bliss Bottom Stitcher.

For assembling cases by bottom stitching, the blade anvil is dropped down against the pedestal and the table is swung to one side as illustrated in figure No. 11; the post is placed in a socket on the base and locked in position.

After the desired number of containers has been bottom stitched, the post is removed and table and blade anvil swung into position for top stitching as illustrated in figure No. 12. Less than one minute is required to make the change.

As the top stitching operation is always conducted on boxes that have been filled and may be of considerable weight, the work table is fitted with ball bearings on which the box may be easily moved in any direction. The table is counter-balanced and is quickly and easily adjustable up or down by hand, for boxes of varying heights.

Top stitching provides a uniform pilfer proof closure that gives added strength and rigidity to the container. It also effects a considerable saving over the cost of taping the joints. Stitches can be removed with a screw driver or special tool without appreciable damage to the box.

Built in two sizes with 15″ and 25″ throats, and 26″ x 30″ work table. Handles boxes up to 25″ in depth. The standard Heavy Duty Stitcher Head is used. Motor, $^{1}/_{4}$ HP.

Machine may be equipped with casters for moving about the plant.

SOME TYPES OF WIRE STITCHING

The illustrations below show the types of wire stitches used on solid fibre and corrugated board, and also some of the many special shapes of stitches used for out of the ordinary requirements. Because of the low cost of wire stitches, and high speed operation of stitching machines, wire stitching of your products will often reduce the cost and give you better results. Information on machines for special stitching will be furnished on request.



1. Staple through corrugated box board using solid clinchers.



2. Staple through solid fibre box board using solid clinchers.



3. Staple through solid paper, using moving clincher.



4. Staple through soft material, using "pass by" solid clincher.



5. Raised staple to allow fixed space under crown.



6. Staple with one leg longer and turned out for fastening.



7. Ring type staple to bind end of rope, etc.



8. Stitching two materials together without clinching staple.

TOP STITCHERS

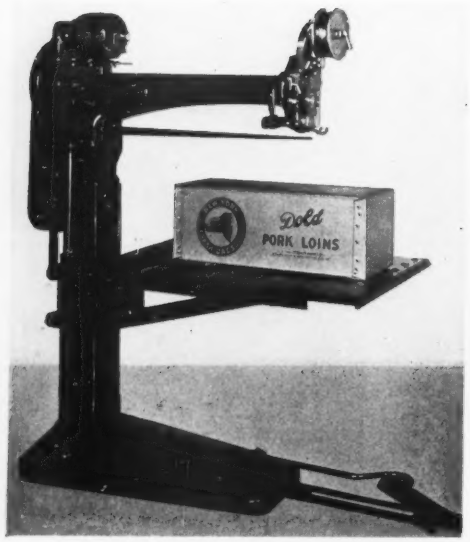


Fig. 13. Bliss Power Lift Top Stitcher

BLISS POWER LIFT TOP STITCHER

The almost entirely automatic operation of the New Bliss Power Lift Top Stitcher permits the operator to handle with much less effort many more containers per day than is possible on the quick lift top stitcher. It is recommended where large numbers of heavy containers are used and is especially suitable with conveyor installations.

By adjusting the work table to coincide with the conveyor line, filled containers may be transferred to the table without lifting, thus eliminating the possibility of tearing flaps or otherwise damaging the case.

The stitcher is equipped with a power driven work table operated by a balanced foot pedal for raising or lowering the box. A device actuated by the top of the container automatically stops the table in just the right position for top stitching. One motor operates power lift and stitcher. A steel work table equipped with steel ball bearings permits free movement of container while being stitched.

SPECIFICATIONS.
Equipped with Bliss Heavy Duty Stitcher Head.
Throat length 33″.
Table size 26″ x 40″.
Takes boxes up to 24″ in depth.
Motor, 1/3 HP any electrical specifications required.



Bliss No. 4-2 Box Top Stitched



Fig. 14. Bliss Quick Lift Top Stitcher

BLISS QUICK LIFT TOP STITCHER

The Bliss Top Sealing Stitcher is used for wire stitching the tops of regular slotted containers and Bliss Boxes.

Production depends on the size of the box; usually 3 to 5 containers of average size can be completely sealed per minute.

The clinching end of the blade anvil is quickly adjustable up or down as needed without the use of tools. The steel work table is equipped with steel ball bearings to permit free motion in any direction of the box being stitched. The table is supported by the Bliss quick lift mechanism which is positive in action and instantly adjustable up and down.

SPECIFICATIONS.
Equipped with Bliss Heavy Duty Stitcher Head.
Built in three throat lengths—15″, 25″ and 33″, accommodating boxes up to 33″ long, 33″ wide and 30″ deep.
Table sizes: 26 x 30″, 26 x 40″, and 30 x 40″.
Motor, 1/4 HP any electrical specification required.
May be equipped with casters for moving about as desired.



Bliss No. 4 Box Top Stitched



Fig. 15. Bliss Portable Top Stitcher

BLISS PORTABLE TOP STITCHER

Containers of large dimensions or exceptional weight which are inconvenient or impossible to stitch on a standard top stitcher are easily sealed with the Bliss Portable Top Stitcher. This unique machine is also useful for sealing the tops of mixed sizes of containers. The outstanding advantage of the Portable is that containers need not be removed from conveyor or truck or handled in any way, the stitcher being taken to the container rather than the container to the machine.

The machine weighs but 20 lbs. It may be suspended from a hook or an overhead trolley by means of a spring. Thus the operator is free to move the machine in any direction, but does not have to support its weight at any time.

The Bliss Portable Stitcher is entirely self-contained with built-in Universal motor. Framework and body are made of light weight metals and alloys designed to combine maximum strength with minimum weight. The stitch is clinched on a C-shaped anvil permitting any length of seam to be stitched.

Uses No. 2 Hybar wire with 3/8″ crown.

REGULAR SLOTTED CONTAINER STITCHERS

BLISS DIAGONAL HEAD RSC STITCHER

The Bliss Diagonal Head Regular Slotted Container Stitcher, which drives the stitch at an angle of 45° to the manufacturer's seam, is a particularly desirable machine for stitching corrugated or solid fibre containers. The stitch when placed diagonally across the corrugations makes the strongest seam available. Solid fibre containers are also stronger when diagonally stitched, as the stitch is always across the grain of the board, thus enhancing its holding strength.

It is not uncommon to find this machine operating at speeds of 400 to 500 stitches per minute. As many as 10,000 containers with five stitches are frequently produced in a day's run.

The machine is equipped with the Bliss Heavy Duty Stitcher Head and a steel work table with quickly adjustable guides. The Bliss Open Head device for holding the flaps in position, is rigidly attached to the stitcher head casting and is therefore self-supporting. The clincher arm does not rest on the box blank at the moment of stitching, which feature eliminates the crushing of the corrugations or denting the board.

A parallel gauge table may be furnished on which the gauge is adjusted in one movement by a crank, and is always in correct parallel position. With this device change from one size to another is made in less than one minute.

SPECIFICATIONS. Built in 32″, 38″ and 48″ throat lengths.

Height to clincher, 43″. Size of Table, 42 x 39″, 42 x 44″, and 42 x 54″.

Motor, 1/4 HP any electrical specification required.

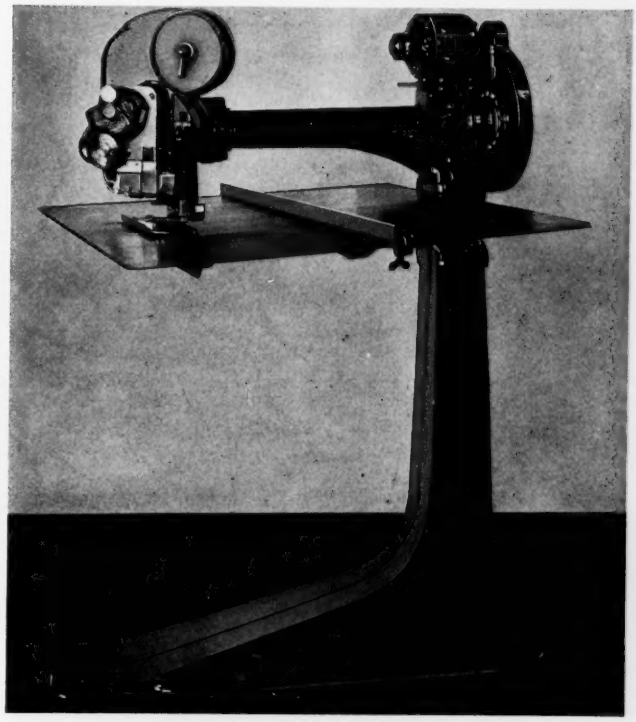


Fig. 16. Bliss RSC Stitcher (Diagonal Head)

LATHAM AUTOMATIC RSC STITCHER

The Latham No. 285 Automatic Regular Slotted Container Stitcher is performing a very important part in large box making factories where high production, large volume, uniform spacing and maximum efficiency are necessary. This machine is recommended for corrugated and solid fibre boxes and is particularly suitable for handling the seasonal demands for cases used for shipping canned goods, food products, bottled goods and other commodities.

The machine will stitch the manufacturer's seams of a wide range of sizes representing 90% of the boxes produced. Production varies from 1200 to 2500 containers per hour.

Design of the machine is arranged for quick set-up, time required averaging from two to five minutes. The stitcher head drives a single row or double row of stitches, or a single row of stitches with tie stitches at each end, at speeds up to 400 revolutions per minute. The stitch is driven at a 45° angle. Machine is also furnished with Bliss Heavy Duty Single Stitcher Head.

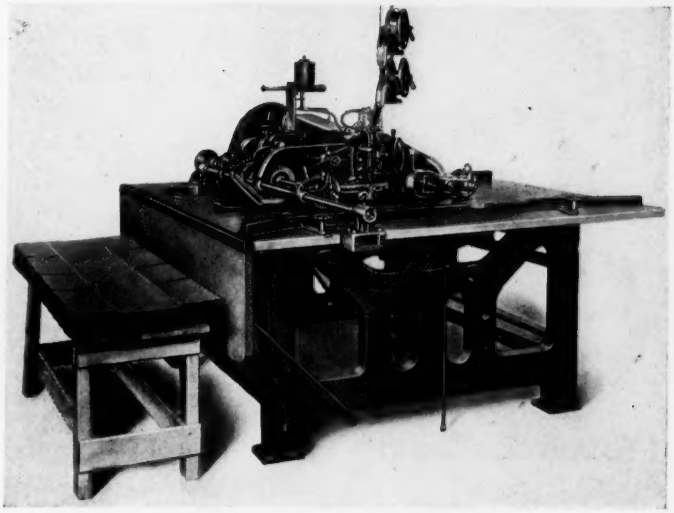


Fig. 17. Latham Automatic RSC Stitcher

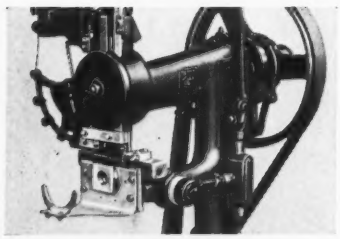
The folded container is fed into the machine, where it is automatically picked up with rubber or steel rollers, moved into a squaring device, stitched and quickly ejected. The machine is ruggedly constructed and equipped with automatic lubrication system.

Feed table as shown in illustration with work on stand is used with only one operator, who picks up the blanks, folds them and lays them in position for automatic feeding. Wing of table may be raised in position for handling large blanks, in which case two operators are used, one folding the blanks and the other feeding. SPECIFICATIONS. Floor space, 7′ x 7′. Net weight, approximately 2600 lbs. Motor, 1 HP any electrical specification required. Wire, .017 and .020 ribbon.

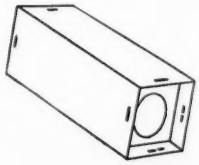


Regular Slotted Container, side stitched on RSC Stitcher

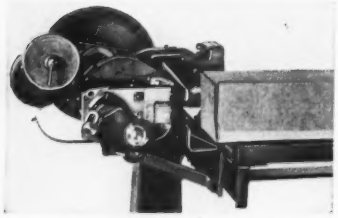
SPECIAL STITCHER ADAPTATIONS



BLISS AUTOMATIC CARTON STITCHER



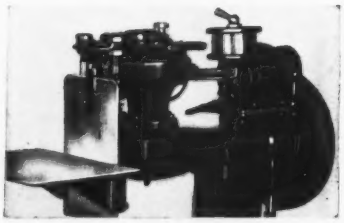
Used for stitching the end panels in special cartons. The end panels with flaps are inserted in the carton and the two are stitched on a square anvil, which makes one-fourth revolution after each stitch is driven. One pressure on pedal drives stitches in the four sides of the carton as it makes a complete revolution. The carton cannot be opened without mutilating. (Used by RCA Radiotron Company.)



BLISS HORIZONTAL HEAD BUMPER CASE STITCHER



Bliss Stitchers with head placed in horizontal position are used for stitching the ends of automobile bumper boxes, shade cloth and screen cases, and other cases of the long, narrow type with the opening on the end. The machine may be mounted on a bench. A short blade anvil is used and the operation is the same as that of a regular top stitcher. A roller work table may be used to facilitate handling.

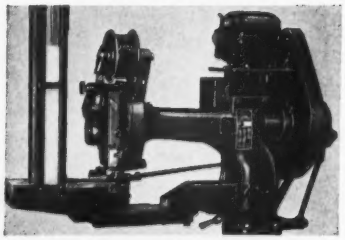


BLISS CADDY COVER STITCHER



This machine, with horizontal stitcher head, is used for attaching covers to caddy boxes that have inner top flaps turned down on the outside. The box with cover is placed in position on the table, and a short blade anvil moves upward and behind the inner flap at the moment of stitching, thus attaching the cover and flap firmly.

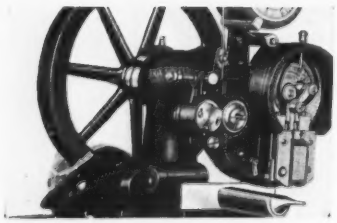
It is also built with the blade anvil moving downward at the moment of stitching. This adaptation is used for sealing cartons and caddies that have no extra top flaps. The anvil enters a pre-cut slot in the top, or it may be sharpened for cutting its own slot. This machine is also used for sealing telescope boxes.



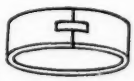
AUTOMATIC CARD STITCHER



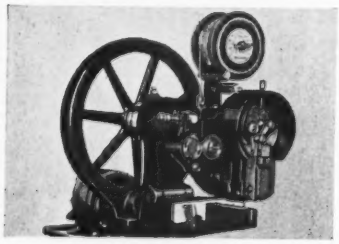
This machine automatically feeds a card to stitching position, where a rubber band, string or other object is held in position as stitch is driven. Machine is available for various sizes and shapes of cards, and for any type of staple suitable for the work.



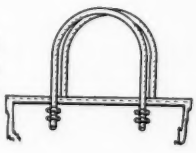
LATHAM BELT LOOP STITCHER



This machine is used for stitching belt loops. It is adjustable for all sizes of loops, and as many as 50 per minute may be stitched. Stitching belt loops on this machine is more economical than any other method of fastening, and the loop is securely held.



LATHAM SHOPPING BAG STITCHER



This machine, equipped with special stitching mechanism, is used for stitching handles to paper shopping bags. Bag and handle are held in correct position and stitched with a special loop stitch as shown in illustration. Users prefer this model for bag handle stitching.

DEXTER FOLDER COMPANY
330 West 42nd Street, New York, N. Y.

BLISS STITCHER HEAD

The Bliss Heavy Duty Stitcher Head is used on all types of Bliss Stitchers, except the Bliss Portable Stitcher. It is the fastest, strongest, most durable and dependable Box Stitcher Head built.

OPERATION.

At each operation wire is fed from the spool, cut to a predetermined length, formed into a stitch and the latter driven through the material and clinched. This work is performed at speeds up to 500 operations (500 stitches) per minute.

CONSTRUCTION.

Because of the heavy wire used for box stitching, and the high operating speed, only the best and most durable materials will withstand the wear and tear to which the Bliss Stitcher Head is subjected. Therefore the cutting, forming, driving and other moving parts are made of hardened tool steel which long experience has proved to be the very best for the purpose and reduces maintenance cost to a minimum.

Extra large working surfaces of cams, long bearing surfaces for former slides, specially hardened knives which can be reground many times, and numerous other engineering features, all contribute to the successful operation and long service of the Bliss Stitcher Head.

The head is easily detachable for service. The wide clearance of $1^{5}/_{8}$" between clincher head and anvil facilitates insertion of heavy work and aids visibility at point of stitching.

SPECIFICATIONS. One adjustment changes the length of wire drawn for varying thicknesses of stock to be stitched.

Interchangeable parts may be furnished for driving the various sizes of wire, including ribbon, highbar, and other flat or round sizes.

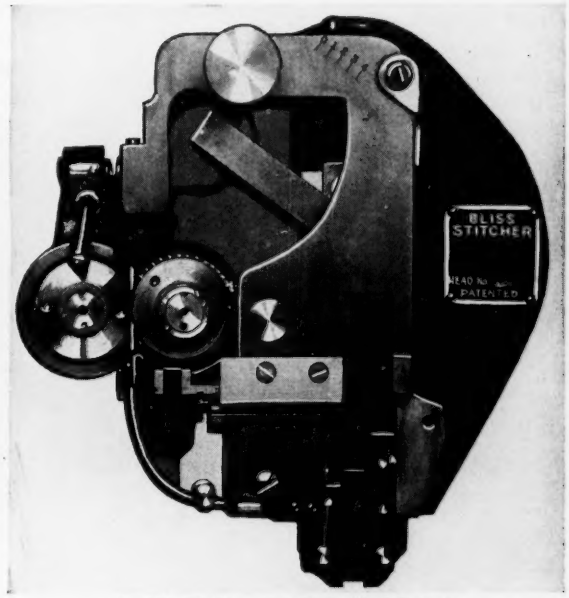


Fig. 18. Bliss Heavy Duty Stitcher Head (Section)

Standard widths of crown, $^{3}/_{8}$" and $^{7}/_{16}$". The head may also be equipped to drive stitches of $^{1}/_{4}$", $^{1}/_{2}$", $^{9}/_{16}$", $^{3}/_{4}$", $1^{1}/_{8}$" and $1^{3}/_{8}$".

A special sharp stitch cutting block may be furnished to give a pointed stitch for use with corrugated board.

SOLENOID CONTROL FOR BLISS STITCHERS

A recent improvement in Bliss Stitchers is the substitution of electrical for manual control. In the manual type the clutch is engaged and released by a foot pedal mechanically connected. The electrical control employs a movable floor switch actuated by slight pressure of the operator's foot, and the clutch is engaged by the action of a solenoid mounted on the frame of the stitcher. When the foot is removed from the switch the solenoid ceases to act, and a spring releases the clutch.

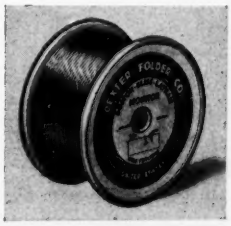


Fig. 19 Illustrating Solenoid Control

Among the advantages of this type of control are:

1. The foot switch may be placed in any desired position which is advantageous when large blanks are being stitched, or when the operator works in seated position.
2. The operator's foot does not have to be raised as high from the floor, and the foot pressure required is less than where manual control is employed, both of which factors reduce fatigue.
3. The operation of the clutch is more positive, and there is less chance for repeating than with the manual trip.

This type of control is optional on all Bliss stitchers at a small additional cost.



PARTS, WIRE AND MECHANICAL SERVICE

All Dexter Offices carry replacement parts for all types of Bliss, Boston and Latham Wire Stitching machines, and are prepared to render prompt and efficient service to any of these makes of stitchers.

A stock of all the usual sizes of box stay and bookbinder's wire is available at all offices for prompt shipment.

Your orders for parts, service, rebuilding and wire are solicited.

DEXTER ENGINEERING SERVICE

Every manufacturer has some condition in his shipping department that may be improved or changed to his advantage either for greater efficiency or for economy.

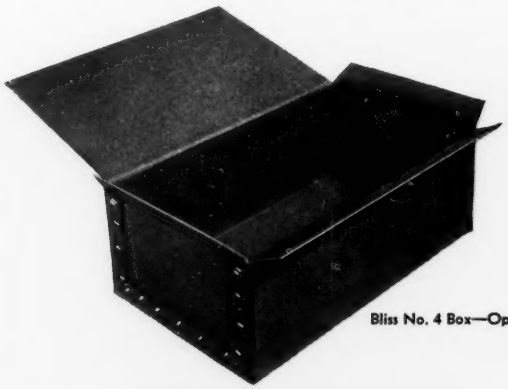
The Dexter Folder Company maintains a corps of engineers who have had extensive experience in packaging and preparing for shipment a great variety of products.

The services of our organization are available, without obligation to you, for making a survey of your packing and shipping departments to determine the most economical methods of handling and protecting your goods while in storage and transit—when they are no longer under your control.

TYPES OF BLISS BOXES



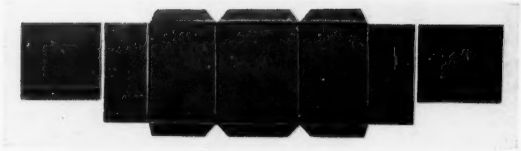
No. 2 Bliss Box—Open



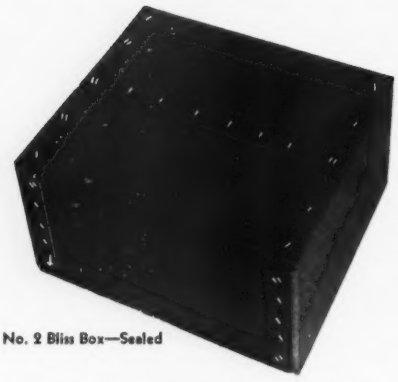
Bliss No. 4 Box—Open



No. 2 Bliss Box Blanks



Bliss No. 4 Box Blanks



No. 2 Bliss Box—Sealed



Bliss No. 4 Box—Sealed

THE SAFEST SHIPPING CONTAINER

Packing goods in BLISS BOXES assures the manufacturer of the greatest possible margin of safety to his goods while stored and in transit. The three-piece construction, with all vertical seams reinforced, makes the BLISS BOX the strongest corrugated or solid fibre container obtainable.

The special method of construction of the Bliss Box offers greatly increased resistance to all types of stresses, whether from within or without the box.

The various types of Bliss Boxes comply with all of the requirements of Rule 41 of the Consolidated Freight Classification.

LOW IN COST

Bliss Boxes are economical because they contain no waste stock. The saving in material and freight charges reduces the total cost an average of 10% and in some instances as much as 20% when compared with other types of fibre containers. The extra strength of the BLISS BOX also often permits the use of lighter board which effects an additional saving.

EASY TO OBTAIN, ASSEMBLE AND SEAL

Blanks for BLISS BOXES are manufactured under license by nearly all leading board mills and box factories in the United States and Canada and are therefore as readily obtainable as other types of shipping containers. A complete list of licensed manufacturers will be furnished on request.

Equipment for easy, convenient assembling and sealing of BLISS BOXES is furnished by the Dexter Folder Company, a fifty-three-year-old concern, with sales and service offices in New York, Chicago, Philadelphia, Boston, Cincinnati, St. Louis, San Francisco, Los Angeles and Seattle.

TYPES OF BLISS BOXES

The most popular types of Bliss Boxes are the No. 2, No. 4 and No. 4-2 models.

When No. 2 Box is assembled, the flanges form a double thickness of board on all vertical seams on the sides, and on horizontal seams at each end of the box.

When No. 4 box is assembled the three flanges form a double thickness on the ends, which gives added protection for canned goods and other commodities where an end thrust of the contents is to be guarded against.

The No. 4-2 box is doubly protected on all four corners and top and bottom of each end. It is the strongest Bliss Box and is desirable for carrying heavy loads, or where extreme rigidity is required for protection of contents.

Dexter men who have a wide knowledge of shipping requirements for many products will be pleased to discuss the advantages of Bliss Boxes and equipment for assembling and sealing them, at your request and convenience.

DEXTER FOLDER COMPANY
330 West 42nd Street, New York



BLISS DELIVERY BOX FOR BOTTLED BEVERAGES

Brewers and Soft Drink Makers are recognizing the advertising and sales value, convenience and economy of this new Bliss Delivery Box for Bottled Beverages.

More than one hundred Brewers have adopted this light weight, strong, attractive box for local delivery. It protects the contents from light and displays brands to the best advantage. Costs much less to make than wood or metal boxes and is used and reused many times. It is delivered flat and is set up at the plant in quantities as needed, thus requiring a minimum of storage space.

This new delivery box is another example of the utility of Bliss Boxes. Manufacturers are invited to consult with our engineers, who are available for making a survey of their packing and shipping departments. They can determine for you the most economical methods of protecting your goods while in storage or transit. Write us. No obligation.

BLISS BOX ASSEMBLY MACHINES

BLISS DOUBLE HEAD ASSEMBLY STITCHER

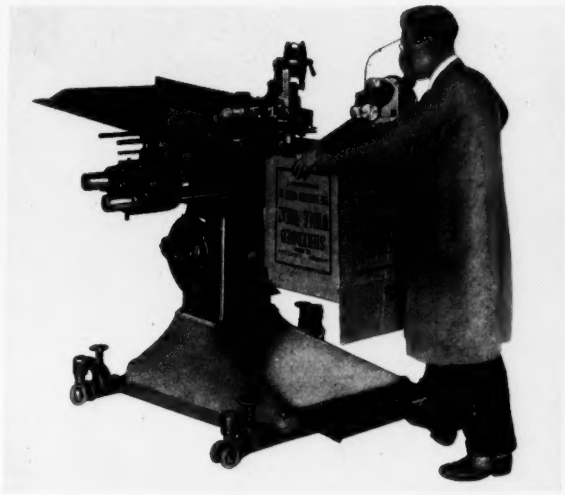


Fig. 20. Bliss Double Head Assembly Stitcher

This machine is designed especially for the assembly of Bliss No. 2 and No. 4-2 Boxes. The standard machine handles boxes in dimensions up to 33″ x 28½″ x 28½″. Three, four or more boxes may be assembled per minute.

Stitches are driven diagonally which gives maximum strength to the seam. A work table is provided in the rear for holding the body blanks, the end panels being stacked on either side of the operator. An automatic feeding and spacing mechanism is built in so that the operator has only to place the blanks into proper position and step on the pedal. The stitches are driven simultaneously in both flanges and properly spaced. The machine is quickly adjustable for boxes of any dimensions within its range.

A special size may be furnished built to order only for handling boxes up to 65″ x 40″ x 40″, a size frequently used in the textile trade.

BLISS SINGLE HEAD ASSEMBLY STITCHER

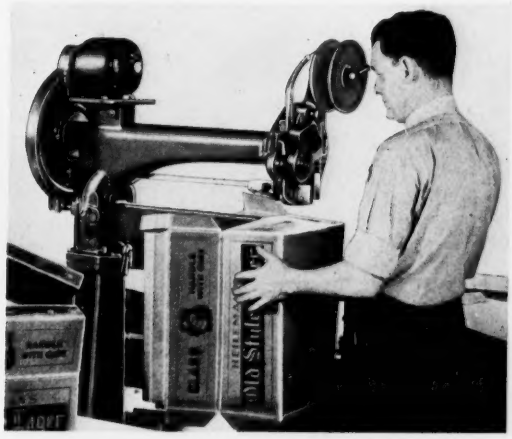


Fig. 21. Bliss Single Head Assembly Stitcher

The Bliss No. 4 Box is usually assembled on the stitcher shown here. The machine is built in three sizes with 15″, 25″ or 33″ throat length, these three sizes covering approximately the entire range of Bliss Boxes. No. 4 boxes can be assembled at the rate of two to three boxes per minute. This machine may also be used to complete the assembly of Bliss 4-2 Boxes, by stitching the extra flanges on the end panels after the box has been partly assembled on a Double Head Stitcher.

The arm of the machine is fitted with a gauge and also a panel holder to aid the operator in holding the work. This stitcher is also made with a collapsible arm and a removable bottom post, for use in assembling both Bliss Boxes and slotted containers in plants where both are used.

Among Over 300 Present Users of Bliss Boxes are the following representative concerns:

American Salesbook Company
Armour and Company
Aspinook Company
Atlas Plywood Corp.
Bassick Company
Bear Brand Hosiery Company
Brown Shoe Company
Buckeye Brewing Company
Berghoff Brewing Company
Chicago Steel and Wire Company
Croft Brewing Company
Cudahy Brothers
Hecker H. O. Company
Hoberg Paper & Fibre Company
Hanover Shoe Company
H. L. Handy Company
Huntington Shoe & Leather Company
Hygrade Food Products Company
Independent Baking Company
Indianapolis Brewing Company
Johnson Biscuit Company
Joyce 7-Up, Inc.
E. Kahn's Sons Company
Kingan and Company
Ortel Co., Inc.
Owens-Illinois Glass Co.
Pepperell Mfg. Company
Plankinton Packing Co.
Phoenix Toilet Paper Co.
Prince Macaroni Company
Pfeiffer Brewing Company
Philadelphia Brewing Co.
Piel Bros.
J. W. Podmore & Sons
Rath Packing Company
W. B. Roddenbury Co.
Rollins Hosiery Company



Bliss Boxes

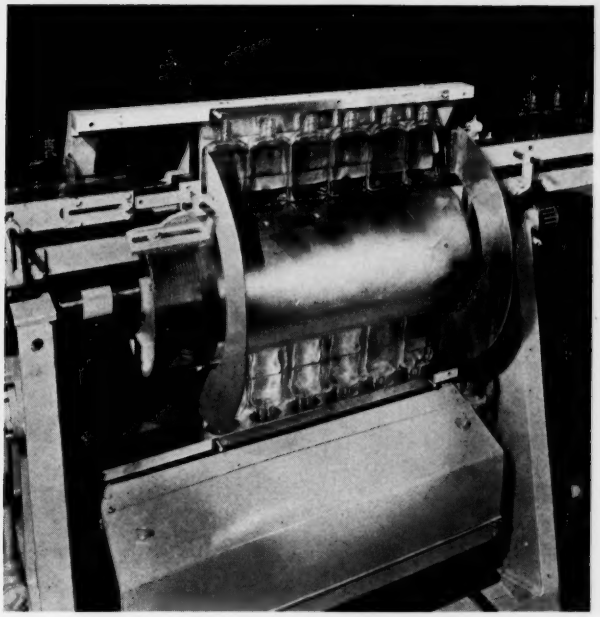
Diamond Match Company
Jacob Dold Packing Company
Dominion Rubber Company
Drewrys, Ltd.
Dunn & McCarthy, Inc.
East Tennessee Packing Company
Endicott-Johnson Co.
Esslingers, Inc.
Federal Match Company
A. V. Fletcher
Falls City Brewing Company
Fort Howard Paper Company
H. C. Godman Company
Goodyear Rubber Company
Galveston Houston Brewing Corp.
Goebel Brewing Company
Griesedieck Brewing Company
Kroger Baking Company
Kiley Brewing Company
Kingsbury Breweries, Inc.
Lindsay Ripe Olive Co.
Lewiston Bleachery
Lion Brewery
Mathiesson Alkali Co.
Oscar Mayer Company
Montgomery Ward Company
John Morrell Company
Miller Brewing Company
Minneapolis Brewing Co.
Merchants Rubber Factory
National Biscuit Company
Neuhoff Packing Company
Ohio Match Company
Obear Nestor Glass Company
Red Top Brewing Company
Scott Paper Company
Shredded Wheat Company
J. P. Squire Company
Swift and Company
Sterling Pulp & Paper Co.
Jos. Schlitz Brewery
Terre Haute Brewing Co.
John Trommer Company
Uniform Chemical Products Co.
U. S. Rubber Company
Whitehouse Biscuit Co.
Western Electric Co.
West Virginia Match Co.
Wilson & Company
Wolverine Shoe and Tanning Co.
Zoller Brewing Company

DEXTER FOLDER COMPANY

330 West 42nd Street, New York, N. Y.



1. Semi-automatic air cleaner. Speed 35 to 40 bottles per minute. Courtesy Pneumatic Scale Corp., Ltd.



2. Automatic straight line air cleaner with streamlined cover removed. Courtesy Pneumatic Scale Corp., Ltd.

places two bottles at a time against air tubes, so arranged as to provide a blast of air whenever the pressure of the bottle necks is applied. From 60 to 80 lbs. of compressed air pressure is utilized and dirt, lint and grease are thus literally blown out of the bottle. Such machines can be operated at a speed of from 30 to 40 containers per minute, depending on the skill of the operator and the size of the container.

Automatic machines of various types are also available. In some instances, rotary machines very similar to bottle filling machines are utilized, receiving the bottles directly from a conveyor and cleaning them while in upright position. They are discharged, one by one, back onto the conveyor, by means of a star wheel.

Another type of machine receives a group of bottles from the conveyor onto a barrel-like holding device and then proceeds to invert these bottles over air nozzles. Cleaning is thus accomplished while the bottles are held in inverted position. While one set of bottles is being cleaned, the preceding set, at the opposite side of the drum, is being returned to the conveyor and a third set being received, immediately thereafter, by the drum.

Air cleaning equipment is sometimes incorporated as an integral part of a bottle filling machine.

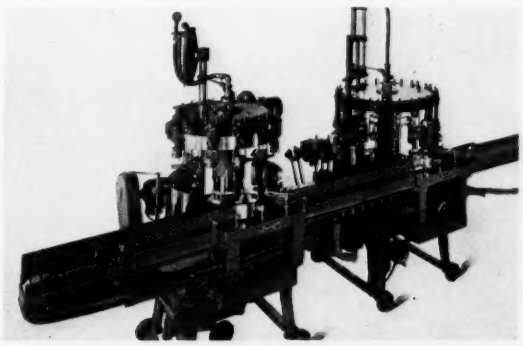
Bottle Rinsers

Bottle rinsers utilize a spray of water—sometimes heated and sometimes including sterilizing solutions, to rinse both the inside and the outside of inverted containers. Some, of the rotary table type, consist of a large number of spouts mounted on a rotary table. The operators invert bottles over these spouts which then pass under a hood where interior and exterior sprays are applied. Machines of essentially similar principle are also manufactured using a straight line conveyor or a chain conveyor, designed to carry one or more rows of bottles through a rinsing hood where both interior and exterior rinsing is performed.

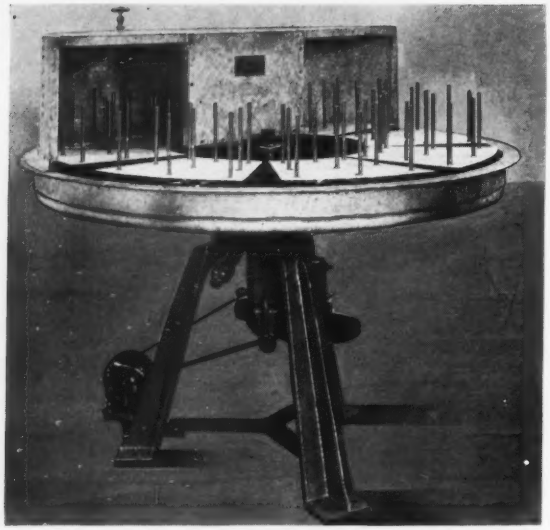
Soaking and Washing Machines

Soaking and washing machines were designed to meet the far more complicated cleaning problems involved in the use of multi-trip containers. Such containers frequently require the removal of an old stained or torn label. They have often been used—while in the field—to hold products ranging from kerosene to fats. They have had opportunity to collect every sort of contamination—germs, dirt, grease and grime—and thus require the most effective form of cleansing and sterilization.

Machines of this sort usually first rinse the bottle to flush out loose dirt, flies, etc., and to pre-heat the bottles for the high temperature solutions in the following proc-



3. Rotary air cleaner used in conjunction with a rotary vacuum bottle filler. Courtesy The Karl Kiefer Machine Co.

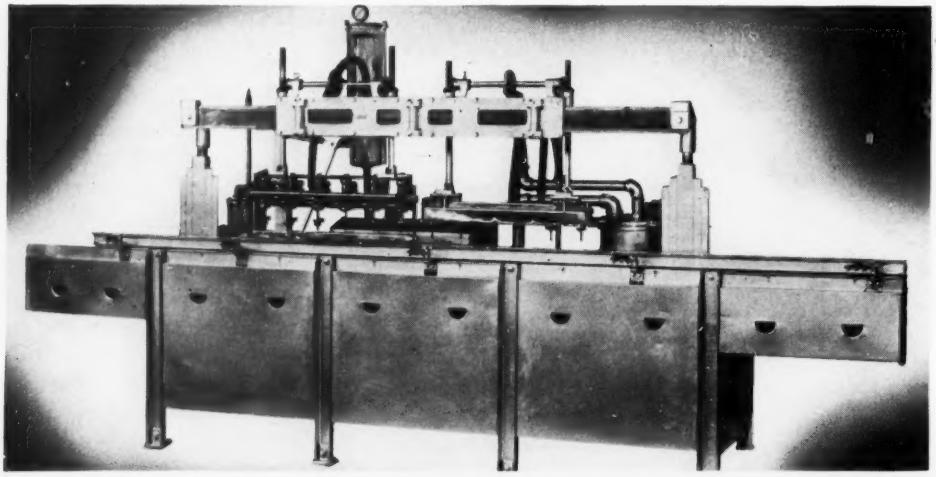


4. Rotary bottle washing machine. Photo courtesy F. J. Stokes Machine Co.

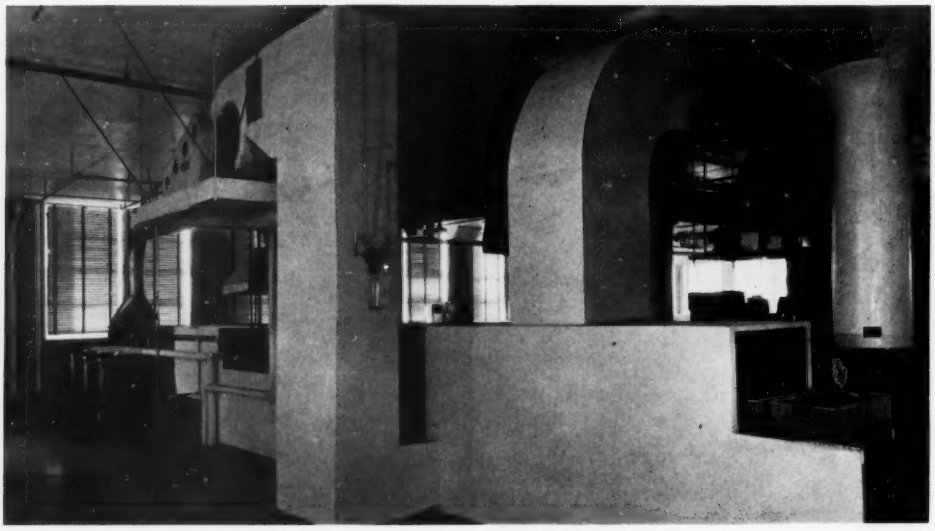
esses. Soaking in hot alkali solutions then follows, to effectively remove labels, adhesives and all forms of dirt deposits. Frequently brushing devices for both interior and exterior of bottles are included as an integral part of the machine. The final step consists of rinsing of both interior and exterior, to remove all cleaning solutions and then draining and, in some instances, drying.

Machines vary in size to meet varying production needs and use chain belts equipped to hold anywhere from one to twelve or more bottles per link. Feed and discharge may be automatic and directly off a conveyor, semi-automatic by means of a magazine feed, or hand fed in some instances.

Production speeds vary with the width of the machine i.e., the number of bottles held per link of chain or belt, and with the size and type of container. Thus an essentially identical machine designed with a four-bottle-wide belt will have a capacity of from 24 to 32 bottles per minute, whereas an eight-bottle-wide belt will have a capacity of from 48 to 64 bottles per minute.



5. Straight line air cleaner combined with vacuum filler. Photo courtesy Elgin Manufacturing Co.



6. Large capacity bottle rinsing and washing machine. Note trays permitting use for wide range of bottle sizes. Photo courtesy U. S. Bottlers Machinery Co.

HORIX MANUFACTURING CO.

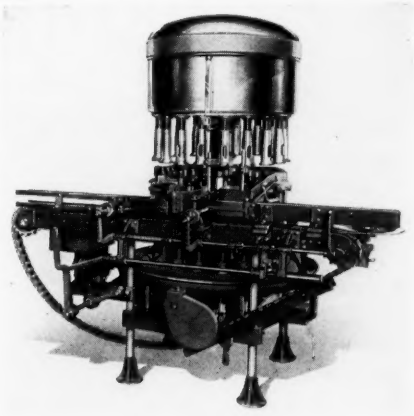
PITTSBURGH (4), PA.

Manufacturers of HORIX, HALLER, and BERGMANN Filling and Conveying Equipment

PRODUCTS HANDLED

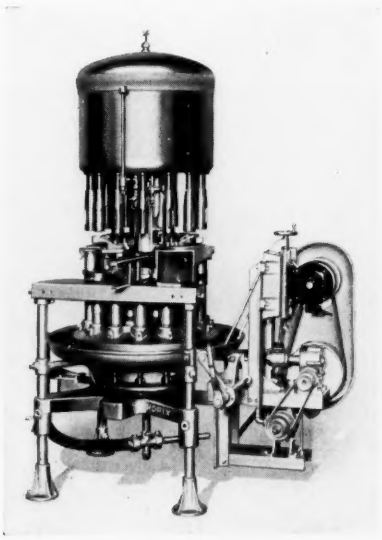
Whiskey	Bluing	Medicines	Chili Sauce
Wine	Catsup	Extracts	Tomato Pulp
Liqueurs	Vinegar	Drugs	Ice Cream
Gin	Syrup	Insecticides	Cottage Cheese
Water	Brine	Fruit Juices	Sour Cream

AUTOMATIC ROTARY FILLERS



Suitable for plants requiring maximum continuous speed with minimum labor. Feed, filling and discharge are completely automatic. Automatic safeties prevent damage and lost time due to defective containers. Bottle Fillers available in 7, 9, 14, 18, 28 and 32-valve sizes will fill all types of containers, at speeds up to 400 a minute. Can Fillers are built with 6, 10, 12 or 18 valves to suit special requirements, filling soups, fruit juices, etc., and syruping or saucing beans, spaghetti, etc., at speeds up to 200 a minute. Operate with all standard washers or closing machines.

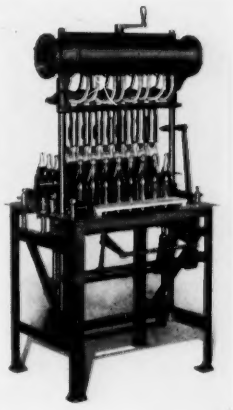
SEMI-AUTOMATIC ROTARY FILLERS

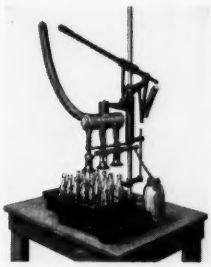


Empty bottles are fed by hand; filling and discharge are automatic. Can be built to handle all sizes and shapes of containers from 2 oz. to 1 gal. at speeds up to 60 a minute. Quickly adjusted to different sizes. Fills uniformly, without drip or waste. Easily disassembled for cleaning or adjusting. Sturdily constructed to insure dependability and long life. Can be operated by unskilled labor.

MODEL NV STRAIGHT-LINE FILLER

Ideal for filling small lots of different products into a variety of containers. Handles any shape or size of bottle from 4 oz. to1 gal. Change from one size container to another is quickly and easily made. Empty bottles are fed by hand. Fills 3 to 12 bottles at a time, depending on their size. Whiskey can be filled at rate of 45 a minute. Filled bottles can be discharged onto a moving conveyor. Does not require expert mechanics for satisfactory operation. Exclusive Gravity-Vacuum System prevents loss due to defective bottles. All parts accessible for cleaning. Corrosion-resisting contact parts can be supplied.

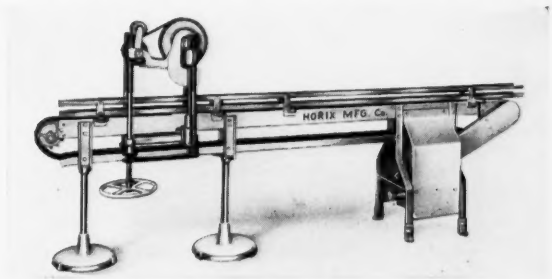




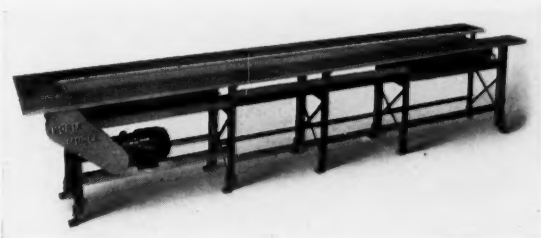
BENCH-TYPE FILLERS

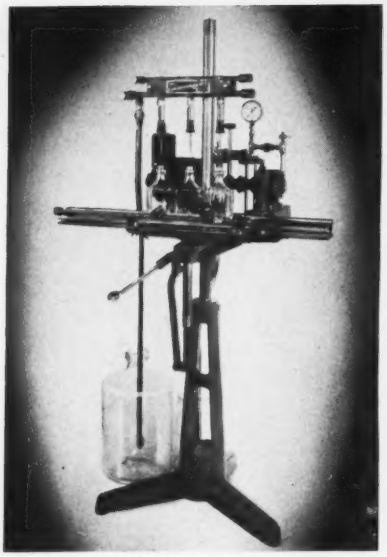
Simple, efficient machines that will quickly save their moderate cost by doing away with loss of product. By use of special feed trays, various size containers can be handled, at speeds of 10 to 20 a minute, depending on product and size of container. Fills cans and jugs, as well as bottles, from miniatures to $4\frac{3}{8}$ in. diame er bottles.

CONVEYORS AND WORK TABLES

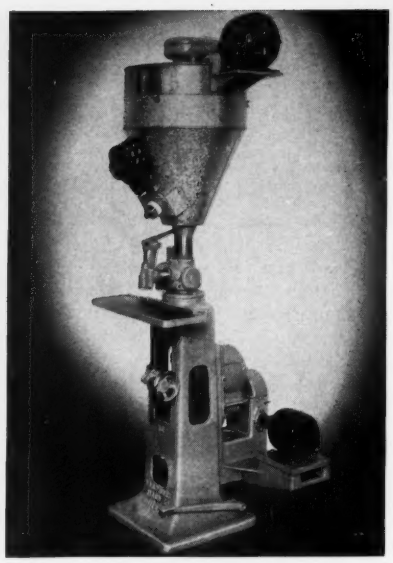


Chain Conveyors, which speed up production and save labor, can be furnished, with Semi-Automatic Corkers, to meet all requirements. Work Table Conveyors, for capping, corking, labelling and inspecting, can be supplied to order. (See cut below.) Frame is of heavy angle iron, rigidly braced. Legs adjustable.

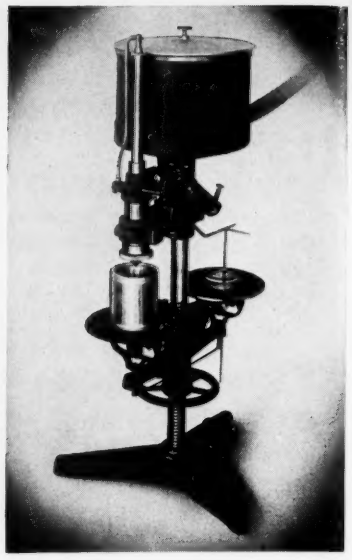




1. Small hand operated vacuum filling machine. Photo courtesy of The Karl Kiefer Machine Co.



2. General purpose filler for liquids, semi-liquids and pastes. Courtesy F. J. Stokes Machine Co.



3. Constant weight measuring filler, hand operated. Courtesy The Karl Kiefer Machine Co.

FILLING LIQUID PRODUCTS

by P. R. FECHHEIMER*

Equipment for filling containers with liquids can be divided into two general classifications:

1. Metering machines—which deliver to the container:
   (a) A measured volume.
   (b) A measured weight.
2. Constant level machines—which fill the containers to a uniform height as measured from:
   (a) The bottom of the container to the liquid level.
   (b) The top of the container to the liquid level.

Metering machines are used principally for viscous or semi-liquid products. The constant volume type consists basically of an accurate pump of either piston or rotary impellers and is obtainable as hand operated, semi-automatic or full automatic equipment.

The hand operated units are generally constructed with a piston pump, a hopper in which is loaded a batch of the material to be filled and a spout to which the operator presents the containers in time with the stroke of the piston. On some products, it is necessary to keep the tip of the spout immersed in the fluid as it is ejected into the container, thus eliminating air pockets. In the hand operated machines, the operator is relied upon to lower the container away at the proper speed so as to accomplish this end.

Semi-automatic and full automatic machines of the piston type operate on a similar principle, except that two or more piston pumps are utilized along with a conveyor which intermittently carries the containers forward. A cam operated table raises the containers at the filling station and lowers them away in timed relationship with the piston stroke. The containers can be automatically discharged onto a conveyor for subsequent packaging operations.

Machines are available of the full automatic constant motion rotary type, which eliminate the disadvantageous features of intermittent motion. This type of equipment can be hand fed by an operator placing empty containers on the trays of the machine. This construction is usually recommended where there is a wide variety of shapes and sizes to be handled. These machines can also be automatically fed and are well adapted to conveyor line operation where there are previous and subsequent operations to be performed. For this purpose, a star wheel is utilized and the containers are removed from the conveyor thereby and automatically returned to the conveyor after filling is completed.

There are two general constructions of the rotary type machine. In one there is a series of piston pumps mounted above and rotating with the containers, so that each stroke of a piston fills the container below it. In the other there is a pump of the rotary impeller or piston type, depending upon the product to be handled, and a valve head arranged so that the entire discharge from the pump is ejected into one, and only one, container at a time. In the past two years, this type of

* The Karl Kiefer Machine Co.

equipment has been greatly improved so as to give greater speed, cleaner filling and a wide capacity range with minimum change-over time. There have also been added no jar—no fill and other safety devices, so as to render the equipment fool-proof. The rotary impeller pump has the distinct advantage of a constant velocity of material flowing through it in one direction, so as to minimize its wear and thereby indefinitely hold its accuracy. The result is remarkably precise filling!

Constant weight measuring equipment contains a scale as an integral part of the machine. As the container is filled to a point where it is equally as heavy as a predetermined weight placed on the other platform, the balancing of the scale causes the filling valve to be tripped and the flow then stopped. These units are principally of the hand operated type and generally give no greater speed than an operator can obtain with a hose with nozzle-valve, but offer the distinct advantage of clean and accurate filling.

The constant level equipment is principally used for light, free-flowing liquids. The siphon filler was the earliest design in this category and is still used for some hand operated units. In these machines, the container is filled until the liquid level therein is the same as that in the float controlled supply tank. Its disavantage lies in the fact that as the two levels approach one another, flow becomes progressively slower, so that high speed production is impossible. There is, however, no overflow to be handled with this method.

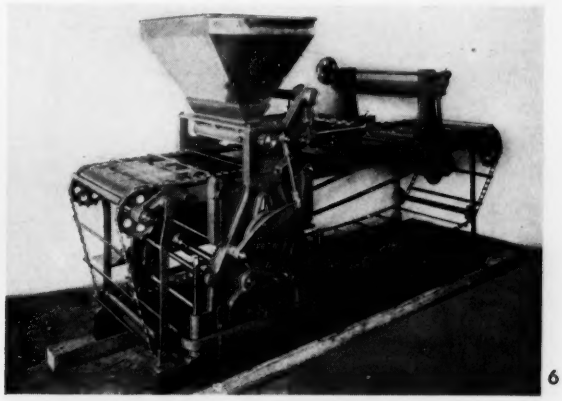
Direct pressure machines require that the neck of the container be sealed, usually with a rubber stopper through which passes the filling stem. This stem contains both liquid and air passages so that, as the product flows through under a gravity head pressure which may vary between three and fifteen feet, the air is permitted to escape. When the container is filled, the air escapes by the passage provided in the filling tube, the liquid then begins flowing out through that passage, but, since the opening is small, it runs at a greatly reduced speed. This overflow must be collected and returned to the supply tank. This type of equipment is faster than the siphon units and is obtainable in all sizes from hand operated to full automatic. It has, however, the disadvantage that it will fill cracked or chipped bottles and will also usually permit some drip from the filling tubes. In the food field it is widely used because of its ease of cleaning.

An anti-dripping or suck-back device is now available



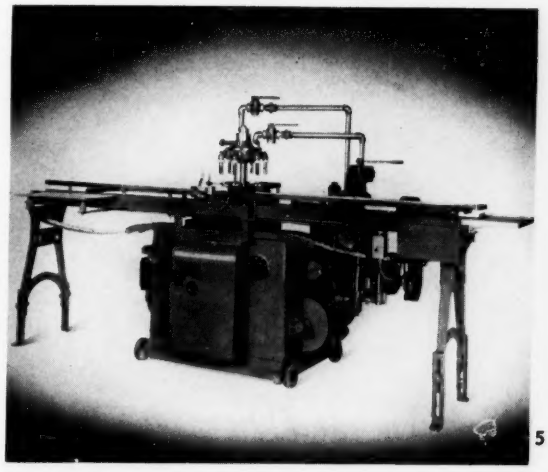
4

4. Straight line semi-automatic vacuum filler. Courtesy U. S. Bottlers Machinery Co. **5.** Constant volume measuring filler, continuous motion rotary type. Speed up to 150 per minute. Courtesy The Karl Kiefer Machine Co.

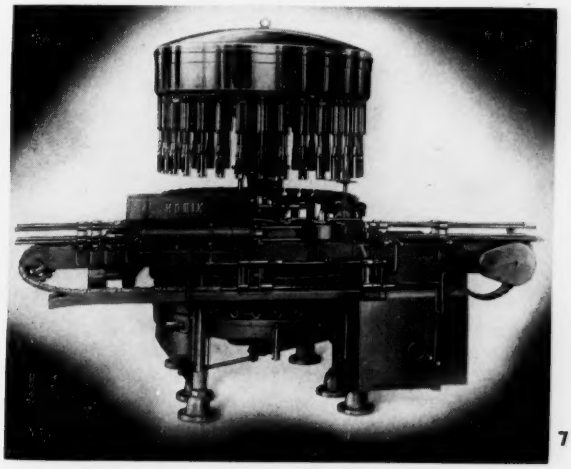


6

6. Plunger type filler for preserves, jellies, etc. Courtesy The Filler Machine Co., Inc. **7.** 32-valve automatic feed and discharge rotary filler. Capacity up to 150 quarts per minute. Courtesy Horix Manufacturing Co.



5



7



MATERIAL: Powders, granular products, pastes 1

CAPACITY: ½ oz. to 5 lbs.—any container

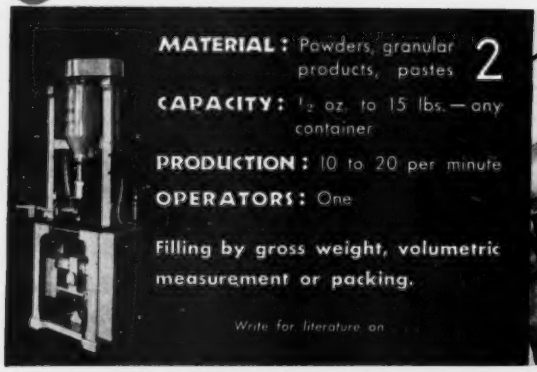
PRODUCTION: 15 to 30 per minute

OPERATORS: One

Filling by gross weight, volumetric measurement or packing.

Write for literature on

S&S UNIVERSAL FILLER



MATERIAL: Powders, granular products, pastes 2

CAPACITY: ½ oz. to 15 lbs.—any container

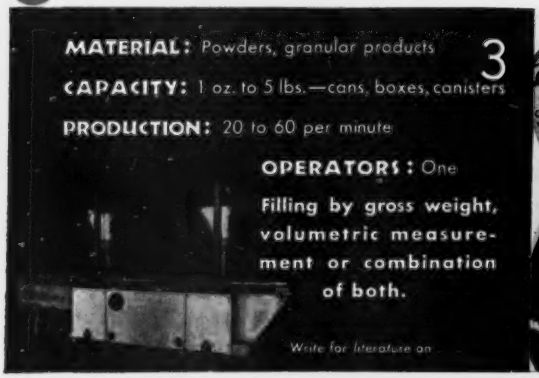
PRODUCTION: 10 to 20 per minute

OPERATORS: One

Filling by gross weight, volumetric measurement or packing.

Write for literature on

S&S HEAVY DUTY FILLER



MATERIAL: Powders, granular products 3

CAPACITY: 1 oz. to 5 lbs.—cans, boxes, canisters

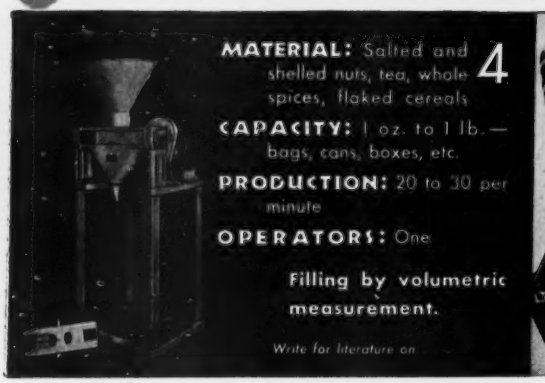
PRODUCTION: 20 to 60 per minute

OPERATORS: One

Filling by gross weight, volumetric measurement or combination of both.

Write for literature on

S&S SINGLE OR DOUBLE UNIT FILLER (AUTOMATIC)



MATERIAL: Salted and shelled nuts, tea, whole spices, flaked cereals 4

CAPACITY: 1 oz. to 1 lb.—bags, cans, boxes, etc.

PRODUCTION: 20 to 30 per minute

OPERATORS: One

Filling by volumetric measurement.

Write for literature on

S&S SIMPLIFIED VOLUMETRIC FILLER









STOKES & SMITH Co
FRANKFORD PHILADELPHIA



5 **MATERIAL:** Nuts in shells, hard candies, flaked products

CAPACITY: 4 oz. to 1½ lbs. (220 cubic inches)

PRODUCTION: 15 to 25 per minute

OPERATORS: One

Filling by net weight.

Write for literature on



S&S CONVEYOR NET WEIGHT SCALE



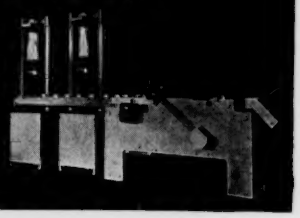
6 **MATERIAL:** Powders, cereals, seeds, chemicals, etc.

CAPACITY: Envelopes 2" to 8" high, when closed

PRODUCTION: 60 to 120 per minute

OPERATORS: None. Entirely automatic. Connects with and seals filled envelopes from powder filler or net weight scale

Write for literature on



S&S BAG AND ENVELOPE SEALER



7 **MATERIAL:** All food and grocery products in cartons

CAPACITY: Maximum carton: 10½" x 6½" x 4½"
Minimum carton: 2¾" x 1⅝" x ¾"

PRODUCTION: 40 to 75 per minute

OPERATORS: One

Several Models. Feeds cartons, bottom seals, fills, top seals.

Write for literature on



S&S NEVERSTOP CARTON FILLER & SEALER



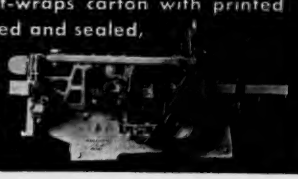
8 **MATERIAL:** All food and grocery products

CAPACITY: Maximum carton: 10" x 6½" x 4"
Minimum carton: 3¾" x 1½" x 1"

PRODUCTION: 60 to 70 per minute

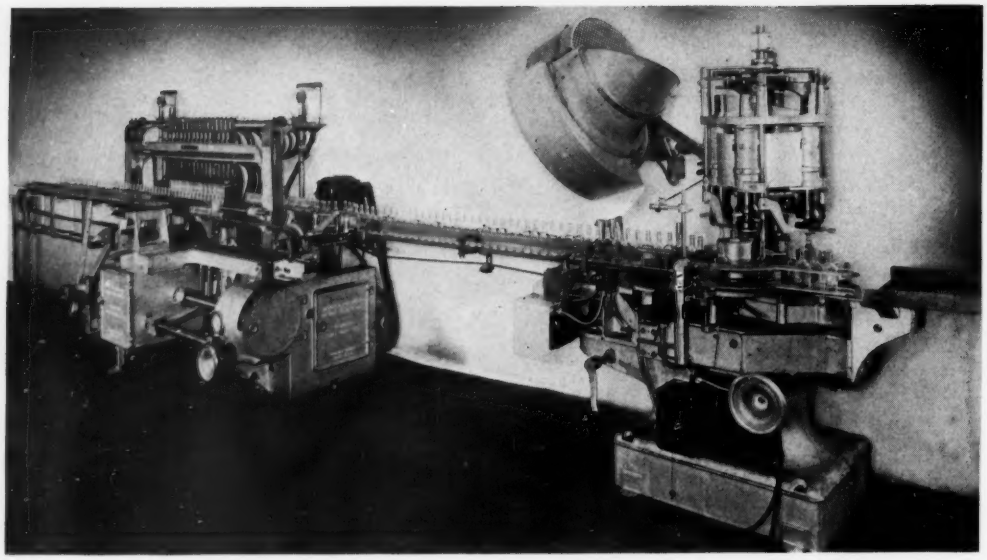
OPERATORS: One

Automatically tight-wraps carton with printed label, after it is filled and sealed, making attractive, siftless tight-wrapped package for all products.



S&S AUTOMATIC TIGHT WRAPPER

STOKES & SMITH Co
FRANKFORD PHILADELPHIA



8. Combination of high-speed straight line filler and four-head rotary capper. Photo courtesy Pneumatic Scale Corp., Ltd.

on some machines, which automatically draws the material into the nozzle at the end of each fill and thereby prevents the material from dripping on the edge of the containers or the machine.

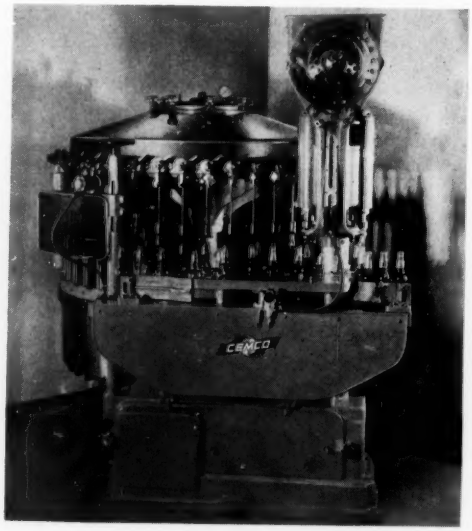
Some of these difficulties can be eliminated by the use of a variant of the direct pressure construction known as the "balanced vacuum." In this design the supply tank, mounted above the filling tubes, is kept under vacuum, so that vacuum must be created in the container before the liquid can flow into it by gravity.

In full automatic equipment, however, by far the most widely used principle is that of the straight vacuum. In this construction, the float controlled supply tank is mounted below the filling tubes. The containers are sealed, as in the direct pressure units and the air withdrawn from them. The reduced pressure thus produced causes the liquid to be drawn into the containers, the overflow going out through the air tubes just as in the pressure machines. The liquid is separated from the air by an automatic trap, the liquid being returned to the supply tank and the air going out through the vacuum pump. These machines are available in all sizes from hand operated to full automatic and are capable of exceedingly high speed operation and extremely accurate filling without drip or spill and, most important, will not fill defective containers.

Into full automatic liquid filling equipment, there have been incorporated, in the last few years, such safety devices which make for smooth, top speed operation with a minimum of stoppage. Machines have devices guaranteeing protection against damages otherwise resulting from carelessness on the part of the operator or from choke-neck or mis-shapen containers, or even the stopping of other machines in the line.

Operating speeds of filling machines of the automatic varieties have been substantially speeded up during the past few years, machines now in operation in some plants working at speeds of as high as 300 14-oz. bottles per minute. Of course, speed—while of great importance, is but one of a number of considerations by which a filler should be judged. Among other important factors are ease of adjustability and ease of cleaning. Machines for foods and chemicals are often made with stainless steels or other reaction-resisting materials on all parts coming into contact with the material being filled.

Semi-automatic units are generally of the straight line type through which the containers are advanced intermittently. Full automatic equipment of both the straight line and rotary types is obtainable. The rotary type lends itself particularly well to conveyor line operation, where other operations are also performed.



9. Rotary syruper, filler and crowner for carbonated beverages. Courtesy Crown Cork & Seal Co.

TO ATTAIN YOUR OBJECTIVE

in

SPECIAL PACKAGING MACHINERY

SELECT AN ORGANIZATION OF MEN WHO

have specialized exclusively in packaging problems—who have created such outstanding methods as Sealtite and Sanitape wrapping—an organization, whose approach to your problems is basic, direct and experienced—governed always by the knowledge that a packaging machine problem, is inevitably a merchandising problem, in the final analysis.

Among others we have produced special machines for such concerns as General Electric Company, Western Electric Company, Hyatt Roller Bearing Company, and Westinghouse Lamp Company.

Our plant equipment and personnel satisfy the most exacting demands —our size provides that intimate and individual attention to your problem, which is so vital in satisfactory attainment of your objective.

THE IVERS-LEE COMPANY

215 CENTRAL AVENUE, NEWARK, N. J.

Producers of Special Automatic Packaging Machines since 1919. Creators of the Sanitape and Sealtite Machines, Unit Powder Package Machine, Universal Tablet Counting and Filling Machine, Cellophane Gum Wrapping Machine, Universal Bag Forming Machine, Cellophane Heat Crimpers, Trimmers and Sheeters, Pliofilm Envelope Machine.

CAPPING EQUIPMENT

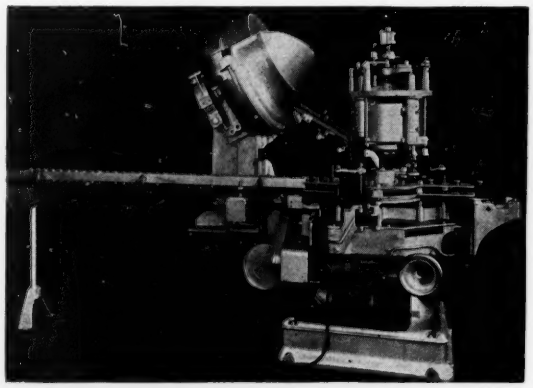
by I. H. RISSER*

Screw caps and turn-on caps are manufactured in many different types and styles and of various materials. They are constructed of plastics and metal. There is the single-shell cap and the double-shell cap. There is the continuous-thread cap and the lug-type cap. All of them are applied by the same general principle: that of turning the cap onto the neck of the bottle, advancing the top of the cap against the top of the bottle by means of a thread or a wedge so as to seal the inner top of the cap to the bottle lip.

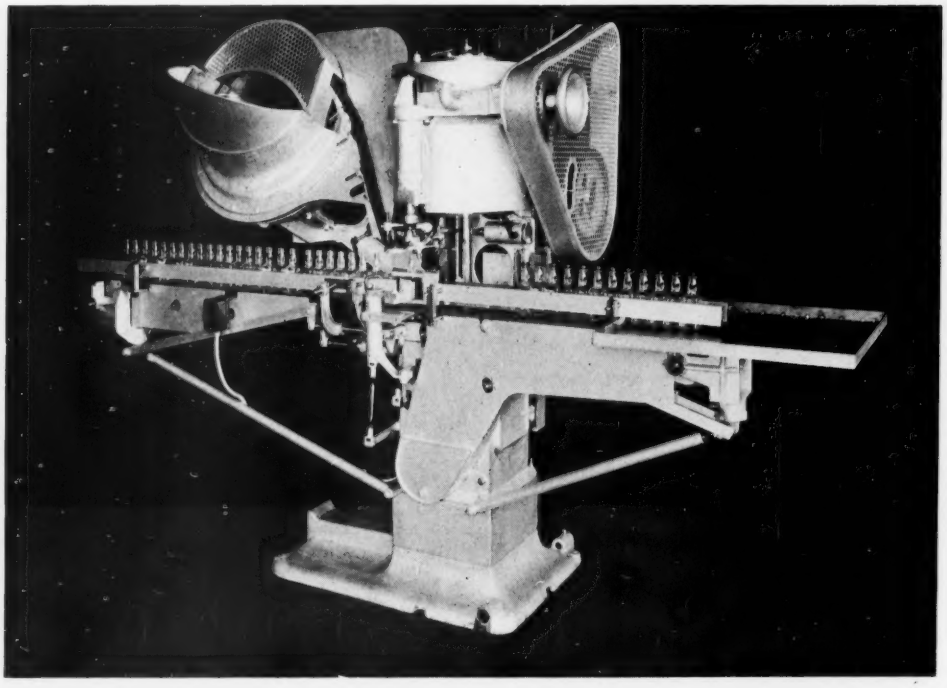
Since it is difficult to control accurately the finish on the top of the glass and the corresponding contact part of the cap, it is necessary that some gasket be used between these two surfaces to insure proper closure and a perfect seal so as to prevent leakage and contamination. It is, therefore, essential that considerable care be used in selecting the proper type gasket, which is commonly termed the cap liner. This liner should be of the proper material to withstand the corrosive action of the product and be sufficiently flexible to permit a perfect seal between the top of the cap and the glass finish without turning the cap on so tightly that it cannot be readily removed by hand.

The application of the screw-cap closure is not as difficult a problem as it at first appears. When the cap is properly designed so that the lead threads readily follow the thread on the glass, thus preventing any tendency to cross thread, and the liners are glued into the cap or attached in a satisfactory manner so as to prevent their falling out of the cap, it is possible to employ automatic equipment in applying these closures.

There are several types of machines available for applying turn-on caps. On some of these it is only necessary to dump the caps in a hopper, from where they are systematically sorted and fed to the machine in relative cooperation with containers received from the filler. On others, generally referred to as semi-automatic cappers, it is necessary to start the cap on the container. Regardless of the type machine employed,



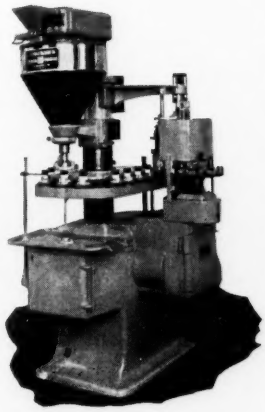
* In Charge of Sales, U. S. Bottlers Machinery Co.



1. Full automatic rotary four-head capper. Courtesy Pneumatic Scale Corp., Ltd.

2. Full automatic single head capper. Courtesy Pneumatic Scale Corp., Ltd.

IF YOU PACKAGE IN TUBES



Full-Automatic No. 15-C Powder Filler with lid transferring and sealing device arranged for filling tooth or talcum powder into tins. Capacity, 50 or more per minute.

Depending on the model and the use of the proper nozzles and hoppers, our tube fillers will handle practically any liquid, semi-liquid or paste, including such products as toothpaste, shaving cream, fish paste, meat extracts, honey, other food products, rubber cement, artists' colors, library paste, paint, grease, insecticides, etc. The semi-automatic and full-automatic tube filling machines can be arranged to apply the patented Stokes Diamon Lock Closure (no clip required) or the new Westite Hermetic Closure.

This Westite Hermetic Closure is leak-proof. The seal is stronger than the tube metal itself. Makes a permanent seal that will hold light, oily products of the type that seep through some closures almost immediately. Makes an air-tight seal that fully protects food or other products from deterioration. If "leaker" losses, resulting in spoilage, soiled packages, "returns," lost sales, dealer dissatisfaction, are causing you trouble and costing you money, investigate this new closure. It is not only leak-proof, but it requires less tube metal and no clips.

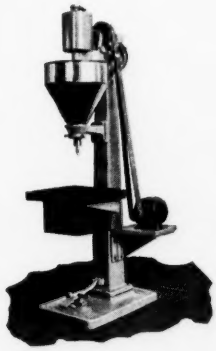
Another Stokes development is "fat-filling" which increases the sales appeal of the package and saves tube metal.



90-DH Full-Automatic Tube Filling, Closing and Sealing Machine makes double, quadruple (for clipless) and Westite Closures. Capacity, 50 tubes per minute.

IF YOU PACKAGE POWDERS

Our powder fillers handle practically any powdered or granular product, including chemicals, pharmaceutical powders, foods, spices, face and talcum powders, insecticides, dyes, etc., etc. These machines range from semi-automatic machines to full-automatic, high-speed machines which fill containers with powders and granular materials at the rate of 60 or more per minute.



14-A Semi-Automatic Powder Filler. Production from 15 to 35 per minute, depending upon size and shape of container, etc.

FEATURES OF STOKES MACHINES

Both tube and powder fillers are modern in every respect. They are accurate, simple, compact, easy to clean and "change over." The automatic models are equipped with "no container—no discharge" controls and adjustable container carriers circle the machines to conserve space. Power-operated models are direct motor driven. Tube fillers have variable speed drive.

40 YEARS OF EXPERIENCE

For nearly 40 years, we have designed and built the type of machines described and illustrated on this page. The value of our long experience is available to our customers. We have a demonstration laboratory for the solution of special filling problems. Write for details . . and recommendations.



Semi-Automatic Tube or Jar Filler No. 2-C—motor-driven.

F. J. STOKES MACHINE COMPANY
5990 Tabor Road Olney P. O. Philadelphia, Pa.
Representatives in New York, Chicago, Cincinnati, St. Louis
Pacific Coast Representative • L. H. Butcher Company, Inc.

F.J.Stokes PACKAGING EQUIPMENT FJS Est. 1895

PNEUMATIC
PACKAGING & BOTTLING EQUIPMENT

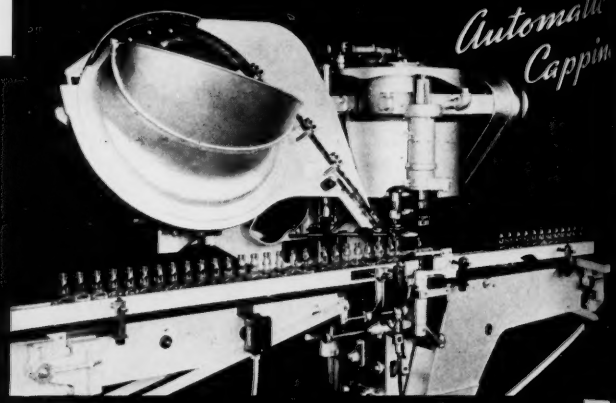
Complete BOTTLING SERVICE

avoids divided responsibility

Inverted Bottle Air Cleaning

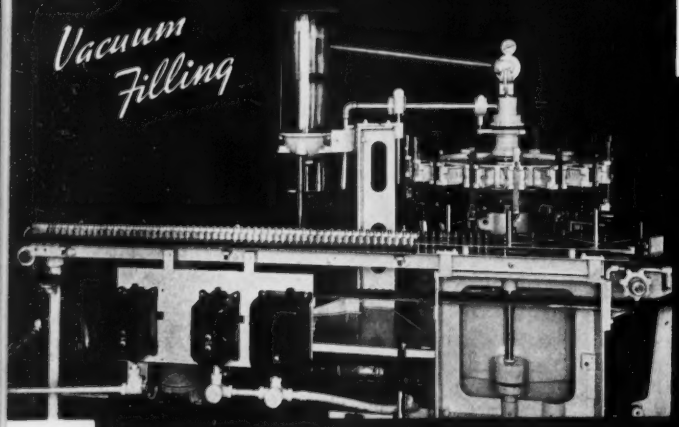


Automatic Cappin

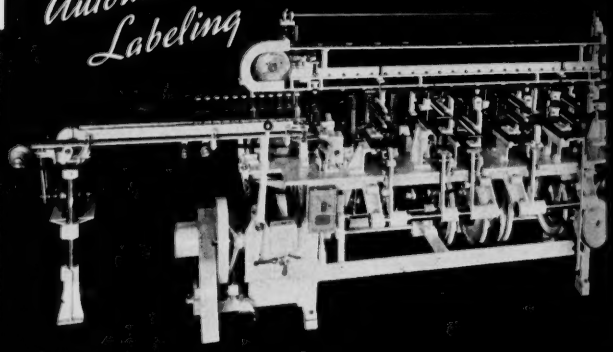




Vacuum Filling



Automatic Labeling





In addition, machines for Capping Cans—Filling Granular Products into Bottles—Labeling Rectangular Cans—Spot Labeling in Relation to raised letters in glass and many other special functions.

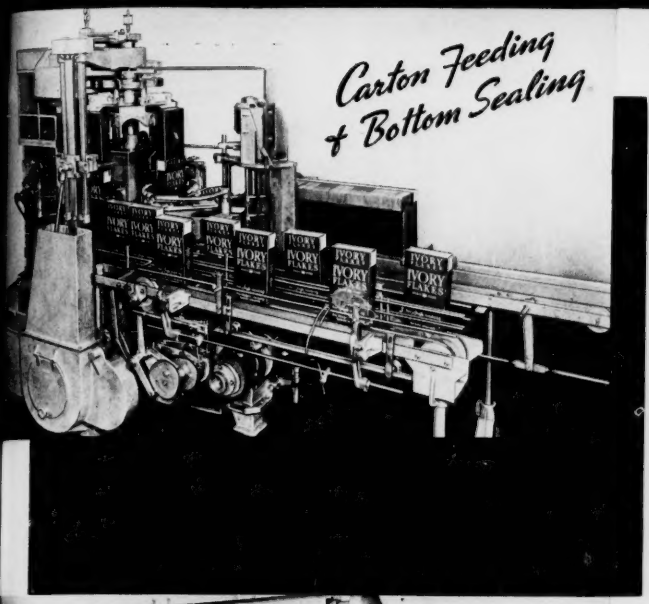
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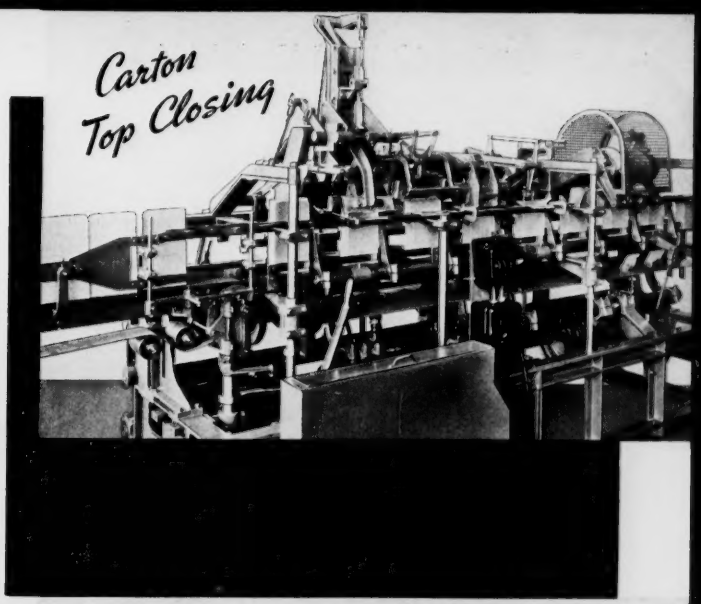
PNEUMATIC SCALE CORP., LTD. 77

PNEUMATIC
PACKAGING & BOTTLING EQUIPMENT

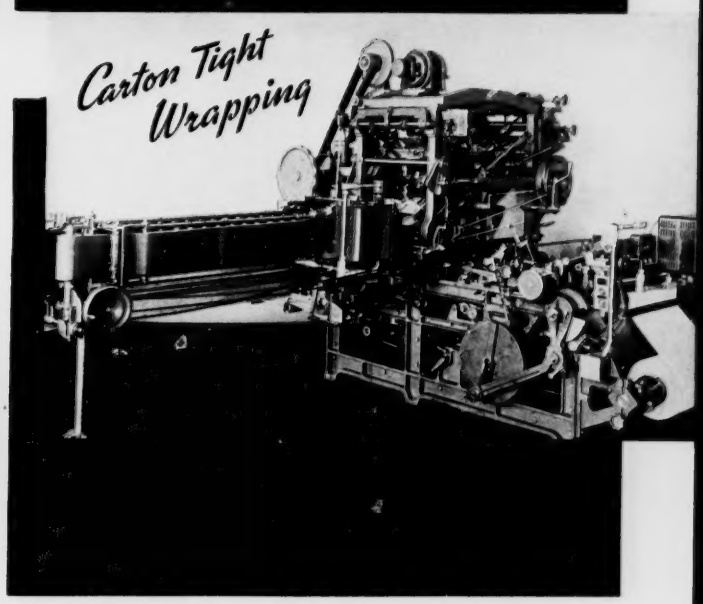
Complete PACKAGING SERVICE

means lower cost per container



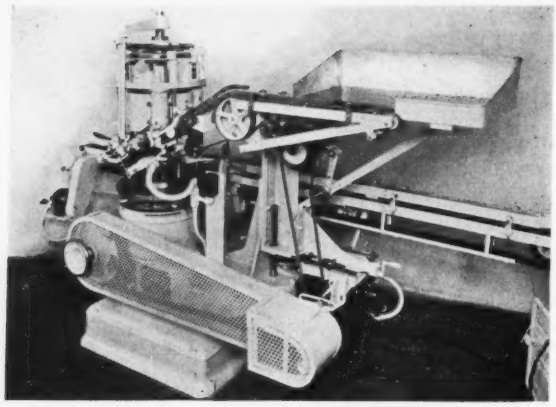






In addition, machines for Carton Lining—Shoe Box Making—Tea Ball and Tea Bag Making—Combination Packaging and for many other special functions. May we suggest a solution to your problem?

77 NEWPORT AVE., QUINCY, MASS.



3. Hand cap feeding arrangement on a high-speed rotary capper. Photo courtesy Pneumatic Scale Corp., Ltd.

the caps must be applied with the proper tension so that a perfect seal is made both with the top of the bottle and the cap liner.

Hand-Capping Machines

There are many cases where production requirements are so small that the tendency is to continue with the old hand operation. For those manufacturers whose requirements are small, the adoption of at least a hand-tightening unit is recommended. This unit can be adjusted so that every cap will be applied to the proper tension in order to insure a proper seal and still be easily removable by hand.

Semi-Automatic Machines

The semi-automatic machine is of the same general construction and size as the fully automatic. The cap-feeding device, however, is omitted and the cap started on the container by hand. It is installed in the production line the same as the fully automatic and occupies the same space as the automatic machine. It has a feed conveyor and a discharge conveyor, and the containers are fed and discharged automatically.

The smallest semi-automatic machine is generally a single-head machine designed for operating at capacities from 1800 per hour to about 2700 per hour. In order to obtain a larger capacity, it is necessary to employ a machine using a number of spindles rather than a single head. These units are designed to possess a capacity of from approximately 50 containers per minute to 120 or more. They are usually of the rotary type and are in practically all cases the same machine as the fully automatic, except for the omission of the automatic cap-feeding and applying mechanism.

Another variation of the semi-automatic capper is the type which uses a belt cap feed onto which the operator simply feeds the caps. From that point on, operation is completely automatic. This method is often used where closures are not suited to automatic sorting and feeding.

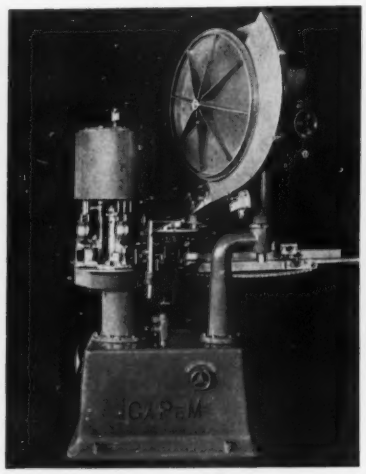
The semi-automatic unit can be readily changed from one size container and cap to another and the cost of attachments for the different containers is not exceedingly high. On the fully automatic machine, a change from one size cap and container to another requires a longer period of time and the attachments, of course, are much more costly.

Full Automatic Machines

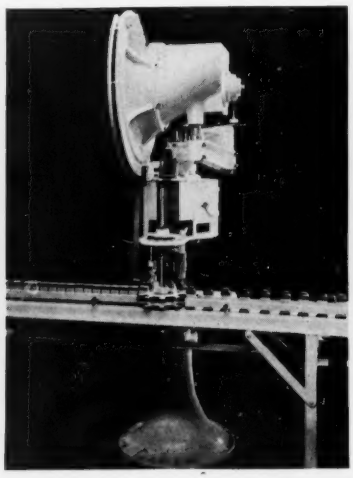
When it comes to larger capacities, or outputs, we find the fully automatic machine far more desirable inasmuch as its greater efficiency will considerably reduce packaging production costs.

Automatic units are most profitably adapted to those production lines operating at a capacity of 45 or more containers per minute. There are, however, many instances where a steady production of 35 to 40 containers per minute is needed and sizes are suited to automatic

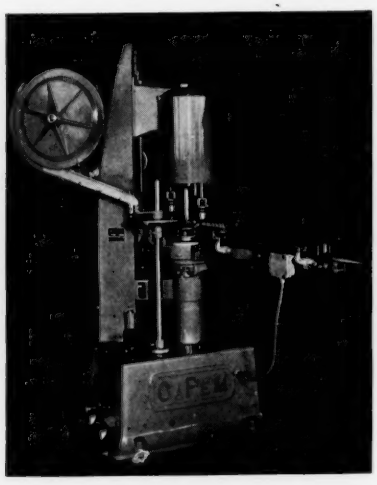
4. Full automatic four-spindle rotary capper. Photos courtesy Consolidated Packaging Machinery Corp.



5. Full automatic capper designed for sorting, feeding and applying square cover assembly to can bodies.



6. Automatic two-spindle rotary type capper designed to meet requirements of firms having an intermediate output.



THE LAMSON COMPANY

Lamson Place, Syracuse, N. Y.

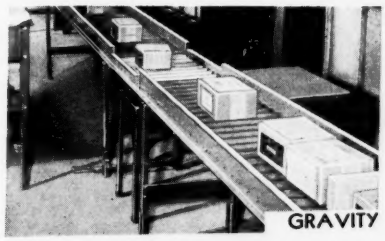
Materials Handling Equipment—Pneumatic Dispatch Tubes

OFFICES

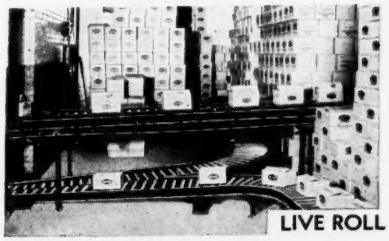
Atlanta, Ga.	Chicago, Ill.	Dallas, Tex.	Minneapolis, Minn.	Pittsburgh, Pa.	Seattle, Wash.
Baltimore, Md.	Cincinnati, Ohio	Detroit, Mich.	New York, N. Y.	St. Louis, Mo.	Washington, D. C.
Boston, Mass.	Cleveland, Ohio	Los Angeles, Cal.	Philadelphia, Pa.	San Francisco, Cal.	

CANADA: Toronto, Ont., and Vancouver, B. C.

LAMSON CONVEYORS—Lamson Conveyors are built in a wide range of types and designs to meet practically every material and product handling problem. In capacity they are designed to solve both simple problems requiring merely a section or two of Roller Gravity Conveyor and complex problems requiring complete systems made up of various types of conveyors.



GRAVITY

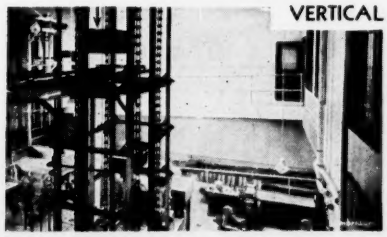


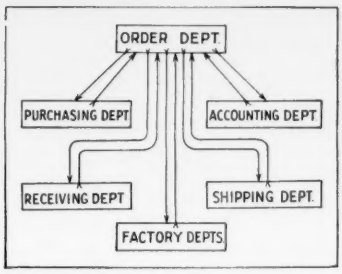
LIVE ROLL



OVERHEAD

VERTICAL





In addition to standard conveyors shown Lamson is equipped to design and install modifications of them or special conveyors to meet individual requirements.

PNEUMATIC DISPATCH TUBES—Wherever there is paper traffic between departments, offices or buildings, Lamson Dispatch Tubes will save time, steps, and money. Tubes are used in practically every type of business to speed the flow of routine papers. Standard carrier sizes range from 1½", 2¼", 3" and 4" diameter carriers up to 3 x 6 and 4 x 7 inch oval carriers.

Lamson Dispatch Tubes are easy to install and at surprisingly low cost. The direct savings usually pay for the installation in a short time.

CONVEYORS

ROLLER GRAVITY—Made in standard 10 ft. straight sections, 45° and 90° curves or special sections—multiple punched frames for perfect alignment—rugged construction available in ⅞", 1¼", 1⅜" 1¾", 1.9", 2½", 2⅞", 3½" and 4" diameter rolls with free running, dustproof and grease packed bearings.

SANITARY TYPE—A roller gravity specially adapted where frequent cleaning is necessary. It is not affected by steam, water, or lactic acid. The spindle is forced into a solid head making a one-piece roll held in the frame by a special bronze and graphite bearing.

LIVE ROLL—Actually, a roller gravity conveyor powered by a rubber covered coil chain which makes a "kiss touch" on the underside of the rolls. Permits a complete system on one handy working level—also available in incline, decline and spiral conveyors.

BOOSTER—Designed for varying degrees of elevation, it is a very effective and economical method of lifting boxes, cartons, tote pans, cases, etc., from one floor to upper floors. Supplied in any height or width. It is a positive loading conveyor ideal for many plants.

OVERHEAD—A very flexible conveyor profitably adapted to many handling problems. Carriers are available to permit handling of a wide range of loads. Ideal for progressive assembly, ovens, paint spray, dip tanks, etc.—provides for live storage and requires no floor space.

SLAT TYPE—A conveyor that handles a wide range of loads—suitable for heavy duty. May be horizontal or vertical with attached platforms. Can be installed flush with floor to permit cross traffic if desired.

VERTICAL—Lamson makes a range of vertical conveyors to meet practically any conditions. From simple, light duty lifts up to heavy duty with automatic devices and selective features.

BELT TYPE—Powered belt conveyors for every application—with roller gravity or slide plate bed construction. Supplied in widths from 3 to 48 in. with solid woven cotton, rubber filled, rubber covered, sanitary, wax treated, oil treated or bituminous treated belting.

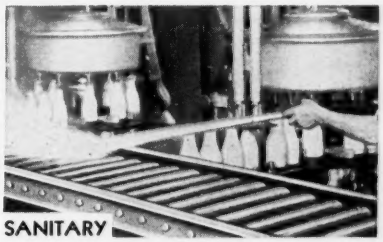
DISPATCH TUBES

A Common Type of Tube Service

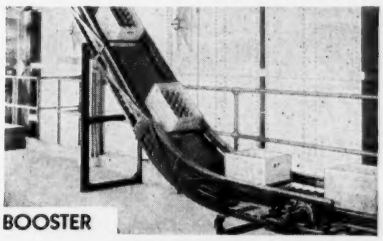
With a Central in the order department, the usual heavy paper traffic originating here is handled with speed and safety to all departments. All departments have intercommunication through the central.

Typical Tube Installation in a Factory

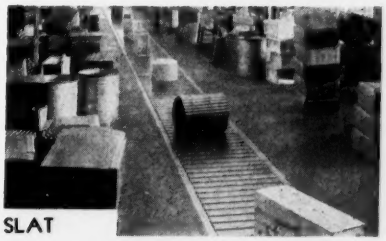
This particular station at the right is equipped with two lines of tubes providing direct service between two other points.



SANITARY

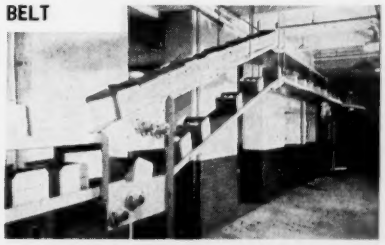


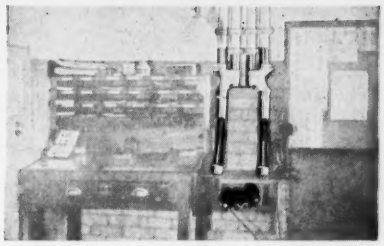
BOOSTER

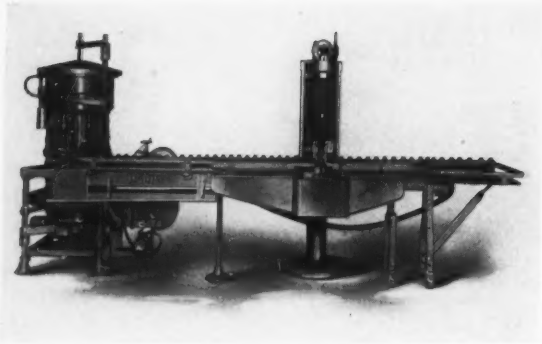


SLAT

BELT







7. Elgin semi-automatic screw capper in hook-up with band feed automatic discharge rotary filler (at left). Photo courtesy Horix Manufacturing Co.

production. In such cases, a full automatic single head or slow speed multiple head unit may be desirable.

There are many important features to be considered in selecting an automatic capper. The most important are:

1. Output capacity
2. General flexibility
3. Mechanical and structural design

Output Capacity or production capacity, should be variable and immediately adjustable to suit the production speed of the filling machine and other production units incorporated in the filling line. With fully automatic equipment, this capacity should be variable: 25 to 35 per minute for single head or slow speed multiple head types and 50 to 130 per minute for larger high speed multiple head rotary types.

Since properly synchronized machines maintain a better production efficiency, it is essential that the capper speed can be instantly synchronized with the speed of the other equipment. The old method of using change-gears to approximate the operating speeds of other units employed in the packaging line is no longer desirable. The change-gear method never permitted absolute synchronization. On the modern machines, synchronization is accomplished by the turn of a simple hand wheel. Operating capacity can be varied instantly to any desired degree, thus assuring proper synchronization and increased production efficiency.

Flexibility: The question of flexibility is one which every prospective user of automatic machinery must answer for himself. He has to consider this question from every angle as he may be handling more than a single size cap and container.

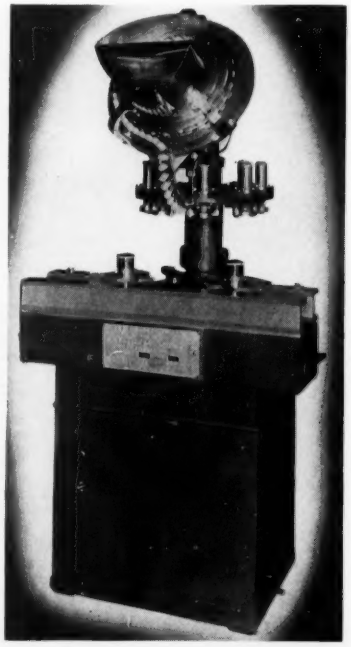
One of the most important things to look for in determining flexibility is simplicity. It is generally found that the most simple machine, operating with the fewest movements, can usually be changed in the shortest time. Flexibility also demands that the machine be instantly adjustable to meet production requirements and output conditions. Also it is well to bear in mind that certain shapes of containers and caps can more readily be handled on automatic machinery than others.

CROWNS AND CORKS

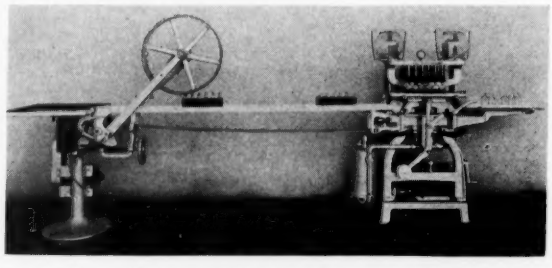
When plain or flanged corks are used, the capping problem resolves itself into one of inserting the cork into the neck, rather than turning a thread. Such insertion is, in the vast majority of cases, done in part or in whole by hand. The most familiar mechanical aid is the corking wheel conveyor, which consists of a section of belt conveyor with a wheel of fairly large diameter suspended above it at the height of the bottle top. Operators start the corks as the containers pass down the fore part of the conveyor and the movement of the belt then forces the bottles, one by one, under the corking wheel. Thus a gradual and increasing pressure is applied to each cork in turn, forcing it into position.

Another type of corker substitutes an endless belt, running over two pulleys, for the corking wheel. A rigid metal plate behind the slanting lower portion of the moving belt forces the corks firmly and evenly into the make of the containers.

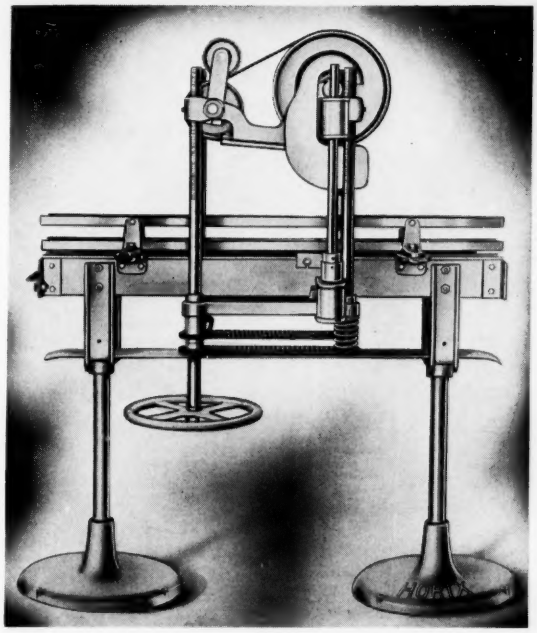
Crown caps are usually applied by equipment forming an integral part of bottle filling machines. However, separate rotary crowners of fully automatic type are



8. Newly developed full automatic rotary corker for flanged corks. Photo courtesy U. S. Bottlers Machinery Co.



9. Corking wheel unit on discharge conveyor of filling machine. Photo courtesy Pneumatic Scale Corp., Ltd.



10. A belt backed by an inclined plate replaces the customary wheel on this newly developed corking device. Photo courtesy Horix Manufacturing Co.

available. These are very similar, in feed and general structure, to rotary turn-on closure cappers, except that they substitute a crown forming pressure for the turning action of the ordinary capper.

Hand and semi-automatic devices for applying crown caps, milk bottle caps, foil and paper hoods for milk bottles, and many other specialized types of closure or super-closure are also available. The basic principle of application varies very little, however, from those described in the foregoing discussion.

So-called roll-on caps are applied by rotary automatic machines which position the unthreaded cap on the bottle and hold it thus while revolving rollers form the cap metal to the shape of the bottle thread.

Fully automatic corking units have been devised recently for a number of special applications. In one such machine, corks are placed into correct position in the corking head for driving into the bottle neck by a positive air pressure feeding device. Corks are hopper fed into a channel that directs each cork to the correct position and register before insertion in the bottle neck. The large capacity hopper is so designed that a casual glance from the line operator will determine just when a new batch of corks is required.

Feeding of the filled but uncorked bottles into the machine is controlled by an electric feed switch. The machine is so designed as to automatically stop whenever a "break" appears in the line of advancing bottles and to remain stopped until the break is closed. The machine is equipped with a vari-drive, making possible its operation at exactly the speed called for by the production schedule and its synchronization with the other units of a packaging line.

VAPOR VACUUM SEALING

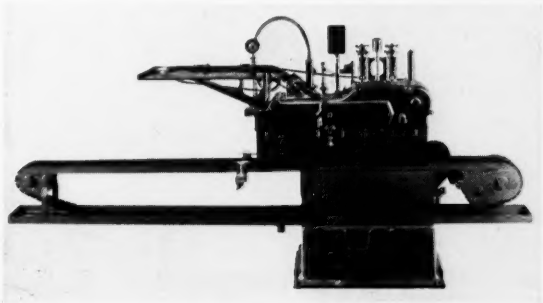
Vapor vacuum sealing is a process whereby an hermetic seal, with metal caps on glass or metal containers for food or other products, is applied. The bottle, jar, tumbler or other package to be capped is carried on a conventional straight line conveyor, at a steady rate of speed, through a short tunnel, within which the upper part of the container is swept by a gentle flow of slightly super-heated steam. This hot vapor displaces the air in the head-space above the product.

While still surrounded by the hot vapor, the jar picks up its cap, which has also been hanging in the path of the hot vapors. A capping device quickly presses the closure onto the container, which then passes to a cooler region of the tunnel where the contraction of the vapor in the head-space causes the vacuum to be formed.

While the primary purpose of the steam is to create vacuum, it also serves a secondary function in that it sterilizes the cap and creates a sterile atmosphere for the capping operation.

The fact that the vacuum is not formed until after the seal has been established is a unique and highly important characteristic of the vapor vacuum system, as it prevents any disturbance of the product. It is impossible for the vacuum to suck the product out of the container, thus making the system ideal for use on hot products, or cold products such as salad dressing, which may contain large amounts of entrained air or gas.

Mechanically, the system is extremely simple. No vacuum pumps of any kind are used with the capper, nor is it necessary to time it to any filler or labeler. The conveyor may, in general, be operated at any speed to suit the convenience of the packer, while the capping speed is limited only by the ability of the conveyor to carry the packages. The number of types of caps available for use with this system has increased each year and the capper itself has kept pace in its development. The current models are fully adjustable for all types of vapor vacuum caps and practically every type of bottle, without the removal or addition of any extra parts or attachments. Uniform, controllable vacuums of from 2 to 28 inches can be obtained.



11. Vapor vacuum capping and sealing machine. Photo courtesy White Cap Co.



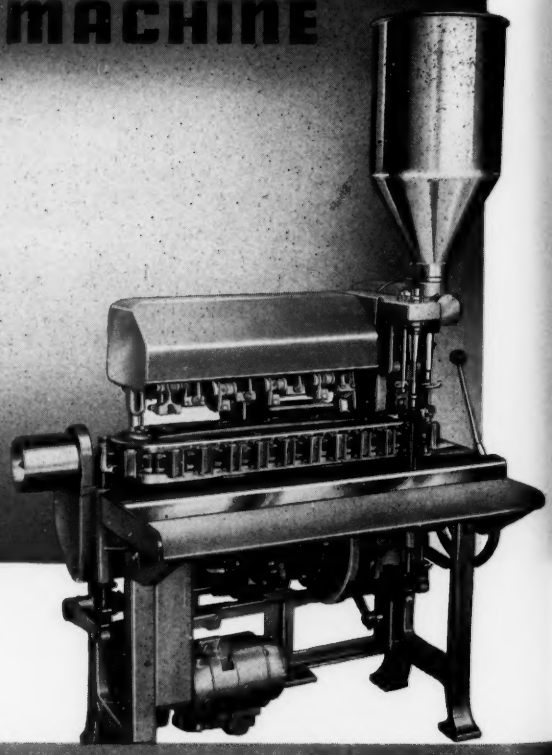
ARENCO MACHINES ARE USED ALL OVER THE WORLD

THE ARENCO LINE.

Arenco Machines are well known for their superior design, efficient and economical operation, and long life. • The machines shown here are only a few examples of the Arenco line of Packing and Wrapping Machines. Many other types are produced, including machines for the packing of cigarettes, cigars, smoking tobaccos, snuff, bread and cartridges, as well as machines for wrapping soda straws and toothpicks. There are other Arenco machines for preparing tobaccos of all types, making cigars and cigarettes, labeling, and affixing revenue stamps. • Among the many features which add to profitable operation is Arenco service which can be obtained throughout the world from centrally located sales offices and service stations.

ARENCO TUBE FILLING MACHINE

The Arenco Tube Filling Machine fills and closes up to 2,500 average size tubes per hour with only one operator. All common types of closures — Easily adjustable to different tube sizes. Among its many important advantages are: tubes filled by direct pump feed — no small orifices — no paste trapped in closures — rat tails completely eliminated. Batch coding and serial number attachments available. All machine parts are easily reached for control, cleaning and adjustment. 1/3 H.P. Motor. Floor Space 3'11" x 2'3".

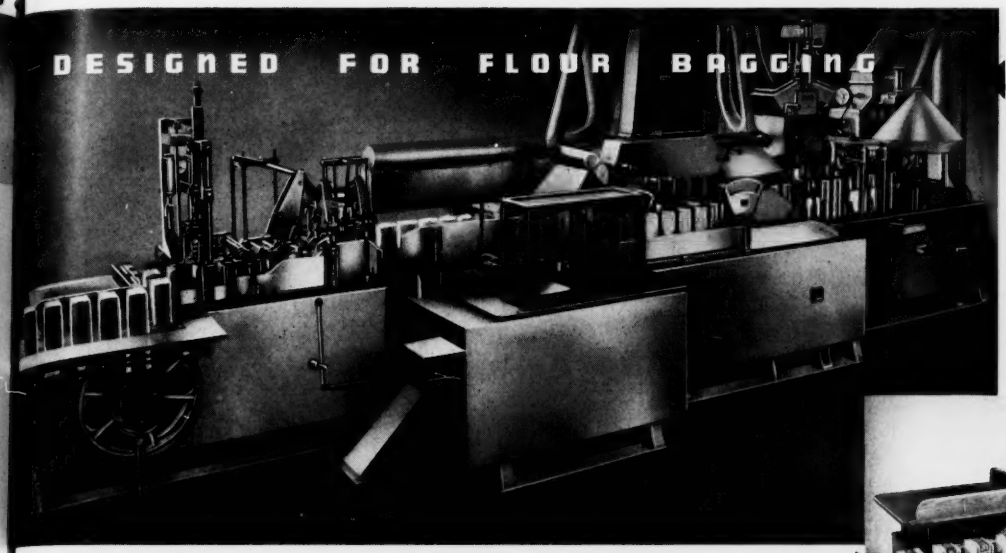


ARENCO

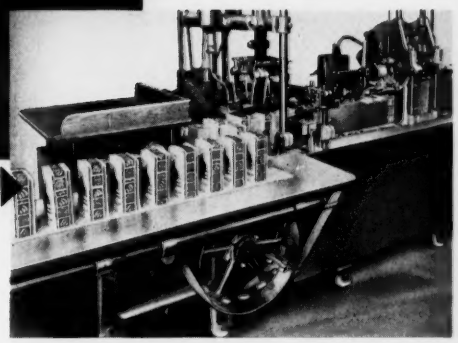
ARENCO

25 WEST 43rd STREET

THE ARENCO AUTOMATIC PACKER.



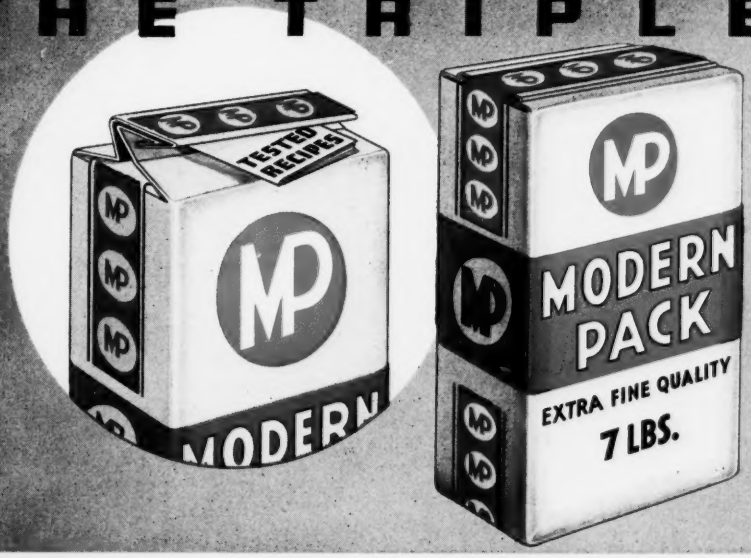
The Arenco Automatic Packer is designed for flour bagging but can be used for sugar and many other products. It fills, weighs and seals up to 1,200 twelve-pound bags of flour per hour with only one operator. The machine has extremely close weight tolerances and is adjustable between 3½ and 12 pounds. Off-weight bags are automatically ejected.



ARENCO CLOSING AND SEALING UNIT

The Arenco Closing and Sealing Machine is a unit of the Arenco Automatic Packer and is delivered in two sizes: the smaller type VUL handles bags from 1⅞" x 3 1/16" x 9 1/16" to 3⅝" x 5⅞" x 15¼" at speeds of 40 bags per minute; the larger type VUP takes bags up to 4 5/16" x 7⅛" x 17⅞" at speeds from 25 to 40 bags per minute.

THE TRIPLE FOLD



With Arenco Machines to package your products, you can give your containers the modern design of cartons, at far lower cost, yet without sacrifice of good appearance.

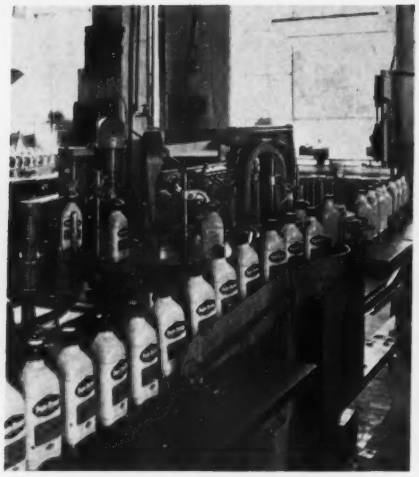
The triple fold shown here is held down securely by a gummed paper strip, making a sift- and tamper-proof closure. The strip covers the fold only and extends part way down the sides of the bag. When the strip is slit the bag opens easily without tearing or pulling. A recipe or advertising pamphlet can be placed inside the fold.



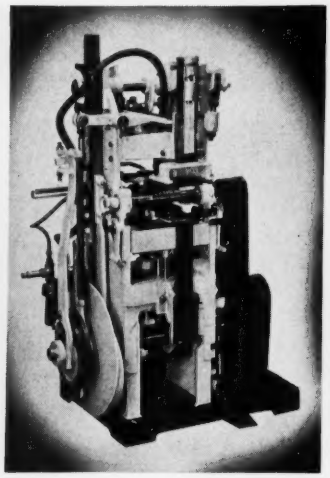
The Closing and Sealing Machines are used for flours, cereal, coffees, sugar, etc. We invite inquiries.

MACHINE COMPANY

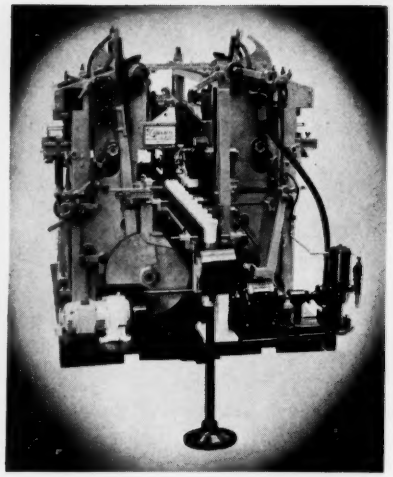
NEW YORK CITY



1. Automatic labeler operating on difficult triangular bottle. Photo courtesy The Liquid Carbonic Corp.



2. Hand fed semi-automatic labeler. Photo courtesy of the New Jersey Machine Corp.



3. Fully automatic duplex labeler applying front and back labels simultaneously. Photo courtesy New Jersey Machine Corp.

LABELING MACHINES

by C. A. CLAUS*

To the vast majority, the application of a label to a package means nothing more than spreading adhesive to a piece of paper by means of a brush and then pressing it to the article, or moistening a previously gummed piece of paper and then attaching it to the package.

While this undoubtedly was the origin of labeling, conditions demanded growth and improvement, so that "laying" and "dipping" methods were evolved. Then gumming machines were used to assist in hand application. As still greater demands were made, actual labeling machines were designed.

Broadly speaking, there are four different methods which underlie the principles used in the design of modern labeling machines.

(1) Adhesive is applied to "pickers" which in turn carry the label from the bottom of a hopper to the package. The label is clamped to the package, the pickers detach themselves from the label and then pressure is applied so that the adhesive which remains on the label from the pickers is caused to attach the label to the wall of the package.

(2) Adhesive is applied to a rubber pad. This pad is brought in contact with the package and then the label in turn is brought in contact with the adhesive-covered surface of the package, after which pressure is applied to form the union.

(3) The label is fed by pneumatic means from a hopper, passed over an opening where a spraying apparatus applies the adhesive. By the same pneumatic means, the label is then carried to the package and applied. Pressure is exerted to complete the attaching.

(4) The label is fed from a hopper by means of a pneumatic platen, which rigidly holds the label over its entire surface in a flat condition and carried tangentially over a twin roller gumming mechanism where a uniform film of adhesive is rolled onto the label. By the same pneumatic means, it is carried and attached to the article, after which pressure is applied to insure firm adhesion.

As is natural with almost all mechanization, the modern labeler is offered in both semi-automatic and fully automatic models, the difference being broadly as to whether the package is brought to the applying station manually or mechanically.

Methods 1 and 4, mentioned above, are employed for semi-automatic or hand-fed machines, whereas all four methods are used in the automatic labelers.

The choice of the semi- or fully automatic labeler depends on plant conditions, such as production, number of changes per day, the physical layout of the plant and sometimes even the article itself.

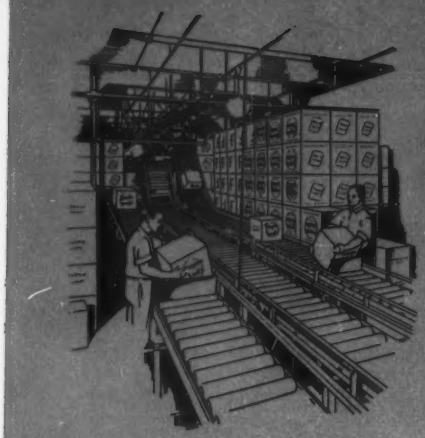
Semi-Automatic or hand-fed labelers on the market today are capable of offering the user capacities from 30 to 60 labels per minute. The production, however, must of necessity depend on the article itself, on the dexterity and application of the operator and the plant management in bringing the articles to, and carrying them away from, the machine. In the majority of cases, this is done by conveyors running in front of (but not interfering with) the operator, or alongside of the

* Vice-President in Charge of Sales, New Jersey Machine Corp.

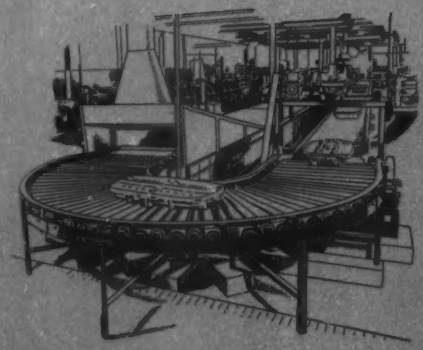
MATHEWS CONVEYER COMPANY

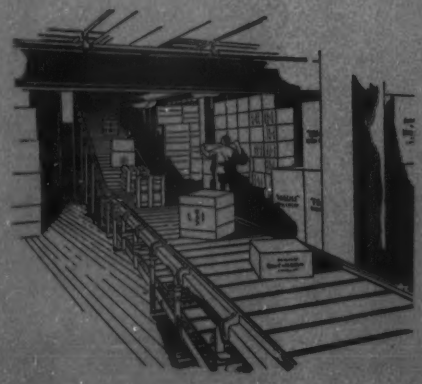
ELLWOOD CITY, PENNA. PORT HOPE, ONTARIO SAN FRANCISCO, CALIF.

EQUIPPING INDUSTRY FOR CONTINUOUS PRODUCTION









MATHEWS

Various types to meet every requirement

ROLLER CONVEYERS

Mathews Roller Conveyers are available in 20 different types, ranging from 1″ to 5″ diameter, including 42 types of ball bearings. This extensive line is divided into three divisions: i.e., light, standard, and heavy duty. Those used for handling light weight objects are 1″, 1⅝″, 2⅛″, and 2½″ diameters. For medium weight objects there are rollers 1.9″, 2¼″, 2½″, and the following in the Heavy Duty classification: 2 9/16″, 3½″, 4¼″ and 5″ diameter. Ball Bearings incorporating various types of labyrinth seals to protect ball raceways from foreign matter, and features for grease packing and periodical lubrication are available.

BELT CONVEYERS

Mathews Belt Conveyers are made level, inclined, or declined, or combinations of these features, and make use of stitched canvas, solid woven, rubber covered, rubber, duck, steel mat, and wire mesh belts.

A standard series identified as types 450, 600, 750, and 1200 incorporate engineering features unique with Mathews. The type 450 is made for light package conveying service in widths up to 20 inches; the type 600 is made in widths up to 30″; the type 750 is made in widths up to 20″; the type 1200 is made in widths up to 30″. Other types available to suit specific requirements.

LIVE ROLLER CONVEYERS

This design exemplifies the use of Live Roller Conveyers which are chain or gear driven. Both result in positive roller action and may be run at high surface speeds: i.e., in the case of conveying hot sheet steel from furnace to mill, surface speeds up to 500 F.P.M. and more are secured. The Steel and Metal Working Industries use Live Roller Conveyers for handling billets, bars, shapes, and sheet steel in many forms, primarily because this type of conveyer will withstand considerable abuse.

PALLET CONVEYERS

Mathews Pallet Conveyers are available in various types. Roller chains with attachments accommodating wood, steel, or interlocking pallets, fill a majority of requirements. It is not unusual to have the pallets fitted with jigs and fixtures adaptable to assembly operations, or have pallets fitted with electrical outlets for testing commodities en route to warehouse and storage.

Adaptable to the handling of crated merchandise, shipping cases, barrels, machinery, bales of cotton, waste and cloth, refrigerators, coiled steel, tire molds, batteries, and for boat loading.

THE DRAWINGS ON THESE PAGES

CONVEYERS

of the Continuous Flow Principle

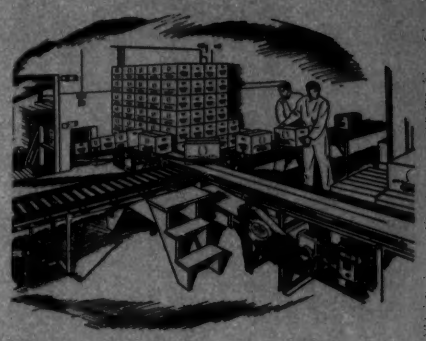
WHEEL CONVEYERS

Wheel Conveyers are used for handling boxes, crates, lugs, cabinets, sheet steel, and other commodities having a flat riding surface. In addition to straight and curved sections, there are right angle transfers, two-way and three-way tumbler switches, frogs, and other accessories which go to make possible the convenient handling of various commodities. The Mathews line consists of ball bearing wheels from 2″ to 8″ diameter, including flat and crowned faced, solid tire, non-scratching, and flanged wheels, having continuous load capacities from 20 to 300 pounds per wheel.



LIVE ROLLER CONVEYERS

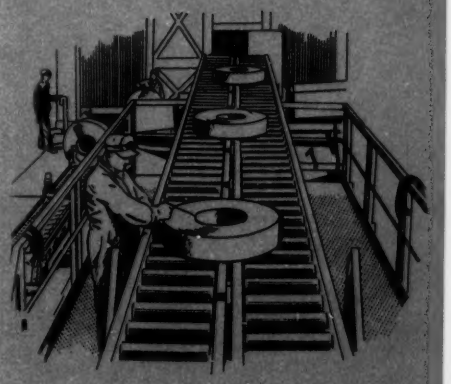
This design is an adaptation of belt and roller conveyers. It is applied where hard, rough service is encountered and where contact with the commodity would be detrimental to the life of a belt, the steel rollers withstanding shock loading, abrasion, and rough usage. Another feature of this construction is that of being able to stop one or several containers on the conveyer while it is in operation, for reasons of intermittent handling of commodities. Ease of deflecting commodities at right angles over the surface of the steel rollers is another advantage of using Live Roller Conveyers.



DRAG CHAIN CONVEYERS

Drag Chain Conveyers are used to a considerable extent by the Steel and Metal Working Industries; for example, as cooling tables for steel tubing, for handling coiled strip steel, sheet steel and other commodities.

The Dairy Industry uses a flexible link drag chain conveyer for handling cans, cases and cartons. In a number of instances ball bearing rollers form the means of carrying the load, the drag chain being fitted with raised pusher lugs (see illustration at right), thus motivating the load along the conveyer.

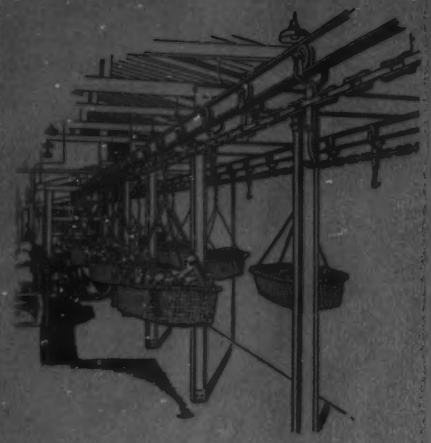


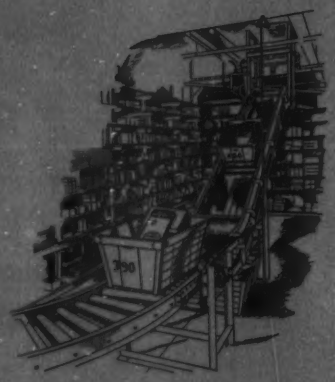
CONTINUOUS APRON CONVEYERS

The Continuous Apron, or Interlocking Pallet type conveyer, is primarily a unit for handling loose materials such as castings, scrap iron, rubber, small parts, and turnings. They are made level or inclined up to 25 degrees. Steel flights are used for inclines greater than this, to keep parts being conveyed from sliding backward, as illustrated at the right. In this installation the conveyer is handling heat treated parts from a furnace, through quench tank, to drying and sand blasting operations.



REPRESENT ACTUAL INSTALLATIONS









MATHEWS

Various types to meet every requirement

TROLLEY CONVEYERS

The Automotive, Radio, and Electrical Industries have lead in the application and use of Trolley Conveyers, which have many advantages over floor type equipment. For example, aisleways and a large proportion of floor areas are kept clear for production equipment and operations. The ceiling is used to advantage for carrying the load. Operations become continuous, the work being lowered at predetermined points by means of dips in the trolley track. Mathews Trolley Conveyers incorporate the well known "Mathews" Ball Bearing Trolley Wheels, used by numerous industrial organizations as standard equipment.

PUSHER-BAR CONVEYERS

Pusher-bar conveyers are used for elevating and lowering. They can be arranged to accommodate several floor levels, with intermediate discharge points remotely controlled. Their operation is continuous with pusher-bars spaced to suit the size of containers or commodities being conveyed. In the installation shown at the left, "filled orders" are being conveyed forward and upward over the partition to order checking and shipping areas. Two types are available, standard and heavy duty, made in four standard degrees of inclination: i.e., 30, 45, 60 or vertical. Pusher-Bar Conveyers operate at an average speed of 60 F.P.M., giving an approximate capacity of 15 units per minute having the pusher-bars spaced at 4 foot centers.

SPIRAL CHUTES

Mathews Spiral Chutes are made with flat or concaved treads, standpipe, open core or enclosed types, having single or multiple treads. By using the force due to gravity, commodities of all kinds may be lowered from one floor to another, quickly and without damage. Spiral Chutes are made to accommodate any practical number of floors and may be arranged with intermediate receives or discharge stations as required. Spiral Fire Escapes of similar design are a part of this varied line.

PILE-EVATORS

The Pile-evator is the continuous motion or conveyer type of elevating conveyer as distinguished from the straight lift or intermittent type of tiering machine. By mechanical means, the discharge or high end may be adjusted to any height within the limits of the particular model employed. Mathews Pile-evators are made in three types, and each type in four sizes, and are used for handling cases, cartons, boxes, sacks, and bundles.

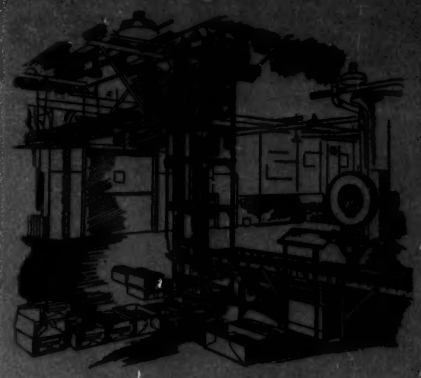
THE DRAWINGS ON THESE PAGES

CONVEYERS

of the Continuous Flow Principle

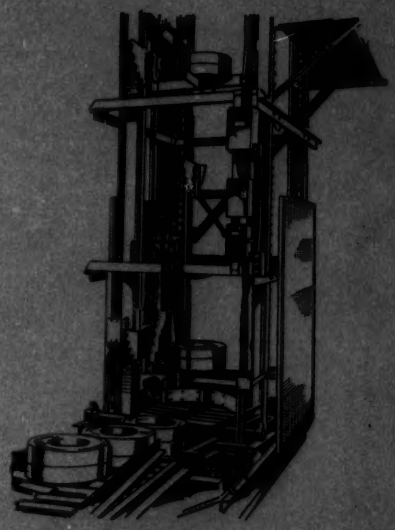
HOISTS

The Vertical Hoist, while performing a service similar to a straight lift elevating conveyer, is not of the continuous operating type, rather operates intermittently and is usually contained within the confines of one or two floor levels. The carriage for the load consists of a tray with a roller-bed, connected by means of a roller chain to a sprocket and drive mechanism at the top of the hoist structure. Hoists are designed for elevating individual items such as tote pans, boxes or any solid form having a flat smooth riding surface. Their primary purpose is to secure elevation of containers quickly and automatically.



VERTICAL ELEVATING CONVEYERS

Straight Lift Elevating Conveyers form an important link in any inter-floor conveying system. Commodities may be taken from any floor and discharged at any floor either above or below the receive point, the operation being practically automatic. A wide range of commodities are handled in this manner, the conveyer in many cases alleviating freight elevator traffic. Various types of carriages make it possible to handle odd shapes such as rolls of cloth or other cylindrical products, cubes, barrels on end or on their bilge, milk cans, oil drums, kegs, coiled strip steel, etc.



ROLLER SPIRAL CONVEYERS

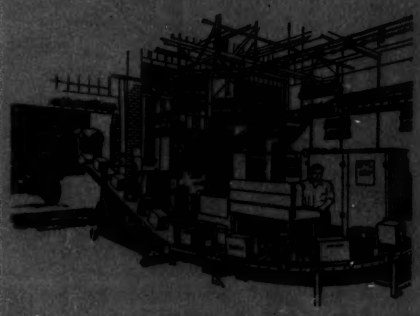
A Roller Spiral Conveyer presents several advantages over other methods of lowering commodities, as it permits of a slow and easy descent and eliminates the necessity of a power installation. It also has the distinct advantage of allowing for sizable storage, not to be had with other types of lowering devices.

Open boxes or trays can be handled without spilling the contents; barrels and tubs can be conveyed in an upright position, and fragile articles can be conveyed in containers without injury to container or contents.



PORTABLE CONVEYERS

Roller, Wheel, Belt, Chain, and Elevating Conveyers may be furnished mounted on casters or wheels for portability. The unit illustrated at the right is a portable Belt Conveyer inclined for the purpose of truck loading. Dock Conveyers, warehousing and shipping platform units of various types are generally made portable for ease of handling. Commodities conveyed represent individual containers to miscellaneous freight.



REPRESENT ACTUAL INSTALLATIONS



ROLLER CO

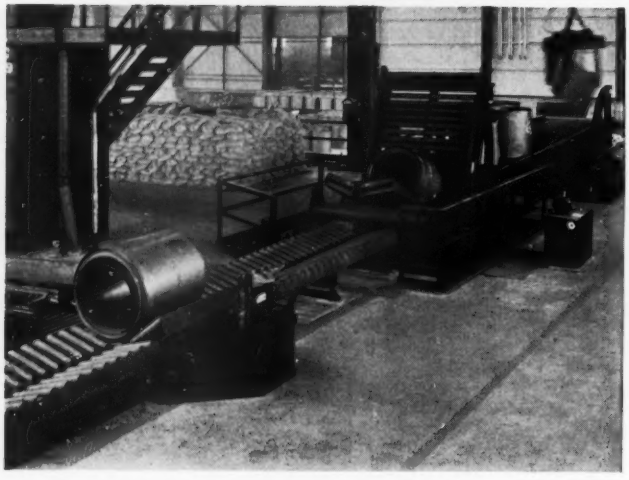
LIGHT DUTY

The installation at the left is typical of light weight package conveying systems using gravity Roller Conveyers. In this instance filled cartons are conveyed from packaging areas and delivered to storage. In the light package field, items weighing from a few ounces to forty or fifty pounds each are conveyed in this manner. Various types of ball bearing rollers are available for this service as described on the opposite page.



STANDARD DUTY

Standard Duty Roller Conveyers include roller sizes and capacities which suit them for work of a heavier nature than the handling of package goods in cartons and similar containers. The installation at the left illustrates the pouring of moulds in a brass foundry. Standard Duty Roller Conveyers are suitable for handling machined parts, castings, shipping cases, drums, and other commodities weighing as much as 400 pounds.



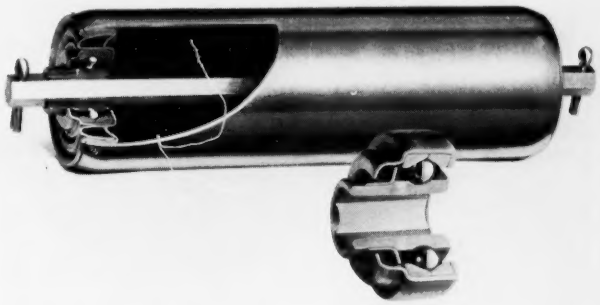
HEAVY DUTY

Mathews Heavy Duty Roller Conveyers include equipment for the handling of unit loads weighing as much as 40,000 pounds (20 tons). The installation at the left shows heavy duty "troughed" Roller Conveyers used to convey coils of strip steel from storage to processing operations. Rollers of various diameters, incorporating grease packed and lubricated bearings with labyrinth protective seals, are available in this series to meet practically every requirement. Note heavy duty roller illustration on opposite page.

CONVEYERS

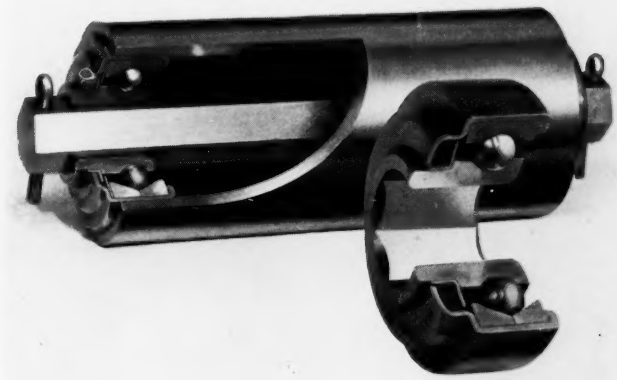
LIGHT DUTY

The Ball Bearing Roller shown at the right is typical of those incorporated in Mathews Light Duty Roller Conveyers. This series includes rollers of 1″, 1⅝″, 2⅛″ and 2½″ diameters, having continuous load ratings from 30 to 150 pounds per roller. Seamless tubing of No. 16 and No. 14 gauge high carbon steel is used, roller axles of hexagon steel, and bearing parts hardened, ball races coined solid.



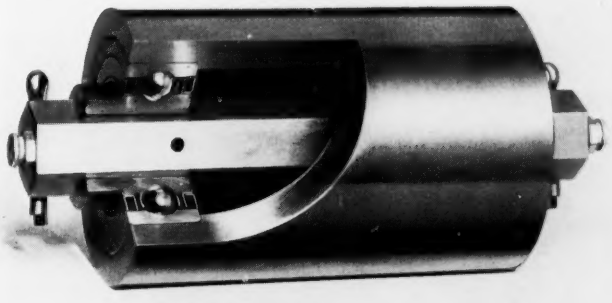
STANDARD DUTY

The Standard Duty Roller shown at the right represents the very latest refinement in ball bearing Roller Conveyer design. It is typical of a popular series which includes rollers of 1.9″, 2¼″, 2⅜″ and 2½″ diameters, having continuous load ratings from 50 to 150 pounds per roller. Seamless tubing of No. 16, 14, 12, and 11 gauge high carbon steel is used, roller axles of hexagon steel, and bearing parts hardened, ball races coined solid as shown.



HEAVY DUTY

The ball bearing rollers in this series are representative of the requirements for heavy industry, particularly producers of steel in its various forms and other divisions of the metal working field. Mathews heavy duty series includes rollers of $2\frac{9}{16}$″, 3½″, 4¼″ and 5″ diameters, having continuous load ratings from 600 to 8000 pounds per roller. Seamless tubing .30 to .40 carbon is used, roller axles are cold rolled hexagon steel, bearing parts hardened, ball races coined solid.

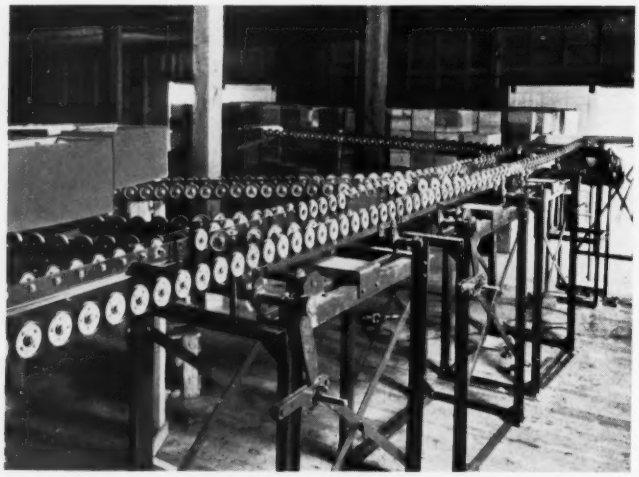




WHEEL C

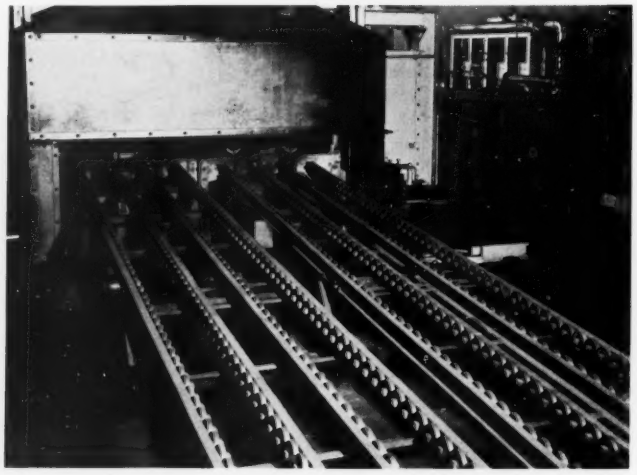
LIGHT DUTY

Wheel Conveyers are widely used for conveying. The closely spaced wheels afford a smooth riding surface and the open space between frame rails permits the handling of irregular shapes, such as orange, lemon and apple crates, bushel baskets, hampers, bundles of shingles, and shooks. In the installation shown at the left, Wheel Conveyers serve to convey filled boxes of fruit from packers to lidding machine and storage.



STANDARD DUTY

As in the case of other conveyers there are accessories available for Wheel Conveyers which make for flexibility. In the installation shown at the left three switches are used for receiving field lugs into storage. Switches are available for right or left hand traffic, or both, including a tumbler type which permits right, left, or straight through traffic. Caster supports, universal couplings, and adjustable jacks are other features which add to the effectiveness of a Mathews Wheel Conveyer System.



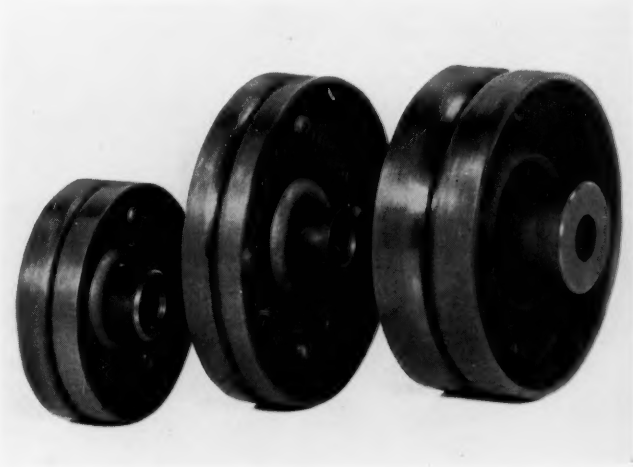
HEAVY DUTY

Mathews Heavy Duty Wheel Conveyers are used extensively in the Steel and Metal Working Industries for handling finished and semi-finished sheet steel and other steel products. They are applied at the receive and discharge ends of furnaces, on furnace run-out tables, about shears, sheet pilers, dryers, sorting operations, switches, right angle transferring devices, and many other practical uses. Wheels in this series are used extensively in power operated equipment such as two-way switches, sheet dryers, and transfers.

CONVEYERS

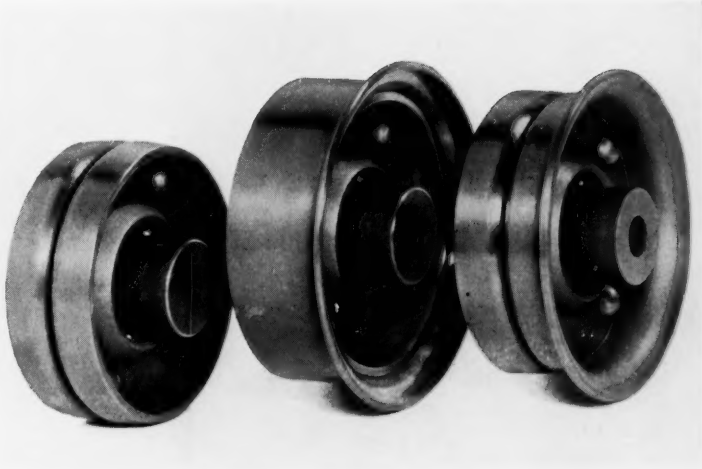
LIGHT DUTY

In this series ball bearing wheels are available in 2″ and 2¾″ diameters with continuous load ratings of 20 to 50 pounds per wheel. This group includes types 70, 71, 80, and 84 Wheels, which meet a majority of light duty handling problems where Wheel Conveyer is the means of transportation. Many unique arrangements result in economical handling, by means of the force of gravity when using Wheel Conveyers.



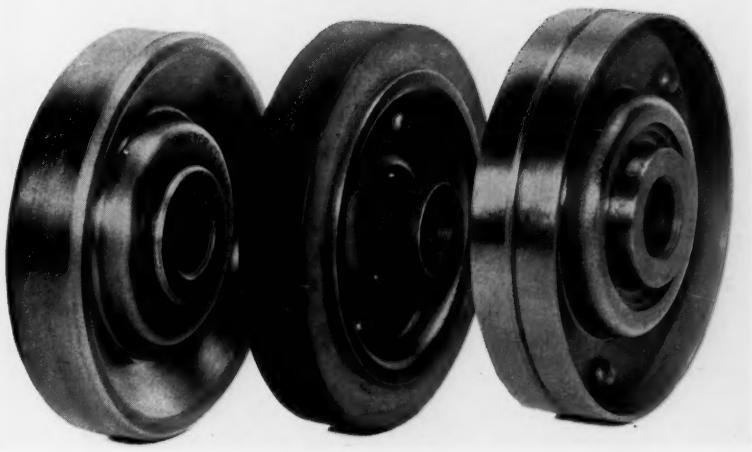
STANDARD DUTY

Mathews Standard Duty Wheel Conveyers include a series of four ball bearing wheels all 2¾″ diameter except one which has an outer tire 2⅞″ diameter. Each wheel has a continuous load rating of 50 pounds. Types 84, 84-C, 84-F, and 85-F comprise the Mathews' Standard Duty Line. Type 84 is flat faced, 84-C crowned face, and 84-F and 85-F are flanged. These are shown in the illustration at the right.



HEAVY DUTY

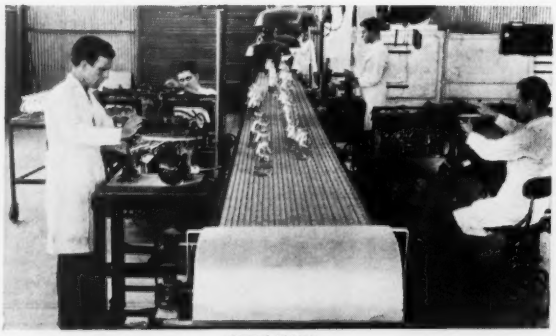
Mathews Heavy Duty Wheel Conveyers include eight different designs, wheels ranging from 2½″ to 8″ diameter, with continuous load ratings of 50 to 300 pounds per wheel. This series includes flat and crowned faced, flanged, solid tire; fibre tired, and non-scratching laminated tired wheels. Types 524, 844 and 1004, all 4″ diameter shown at the right.



BELT C



PAPER PRODUCTS



CERAMICS



PAPER



VEGETABLES

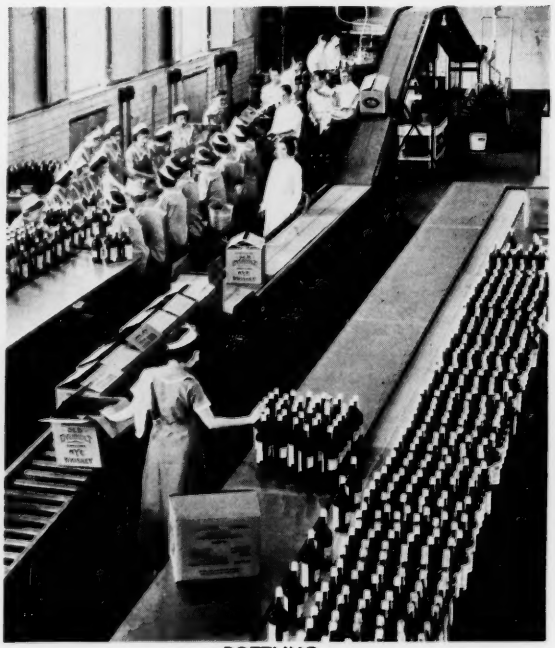
THE Mathews line consists of practically all types except those used for bulk materials handling and are made level, inclined, or declined, or combinations of these features, incorporating stitched canvas, solid woven, rubber covered, rubber, duck, steel mat, and wire mesh belts.

A standard series identified as types 450, 600, 750, and 1200 incorporate sound engineering features unique with Mathews designed equipment.

The type 450 Belt Conveyer is made for light



BREWERIES



BOTTLING

XUM

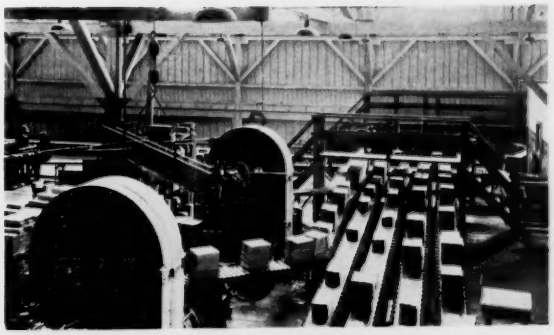
CONVEYERS

package conveying service in widths up to 20″; the type 600 is made in widths up to 30″; the type 750 design incorporates the Mathews Floating drive and is made in widths up to 20″; the type 1200 is similar but made in widths up to 30″.

With the addition of deflectors, transfers, work tables, variable speed drives, timing devices, inclined and declined sections, it is possible to work out many practical applications of this universal means of conveying.



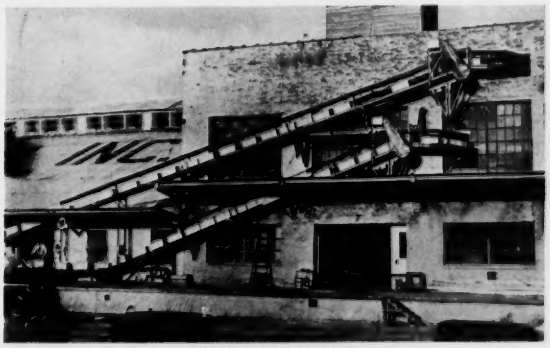
CHEMICALS



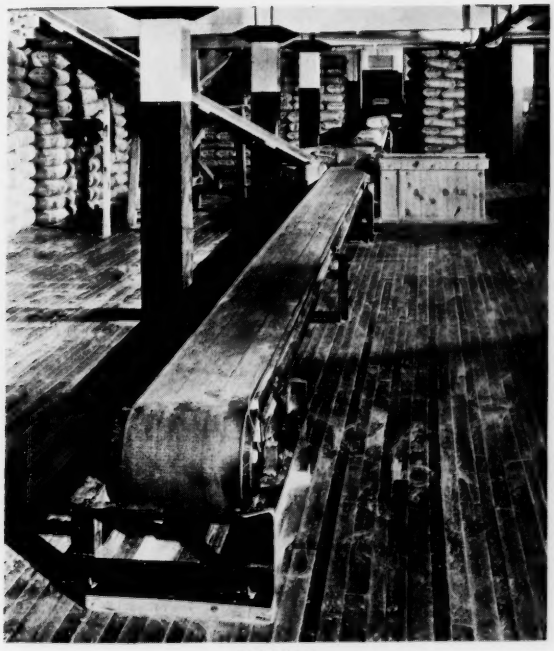
BOX MANUFACTURE



FOOD



WAREHOUSING



MILLING



FRUIT



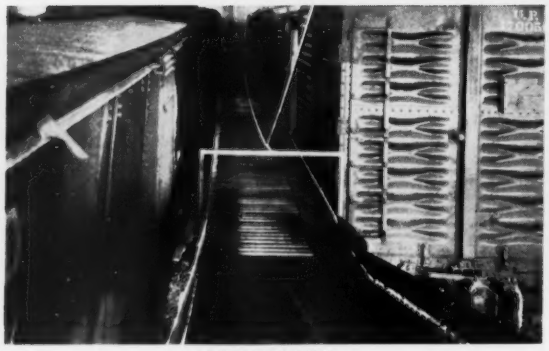
AUTOMOBILE TIRES



MANUFACTURING



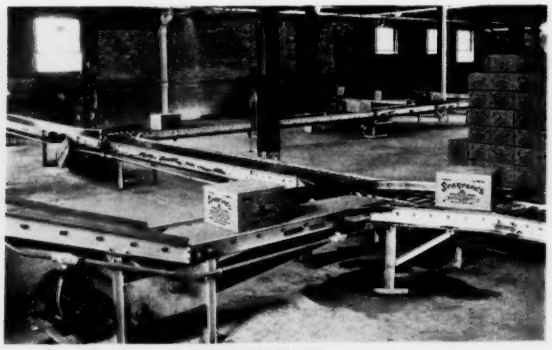
BREWERIES



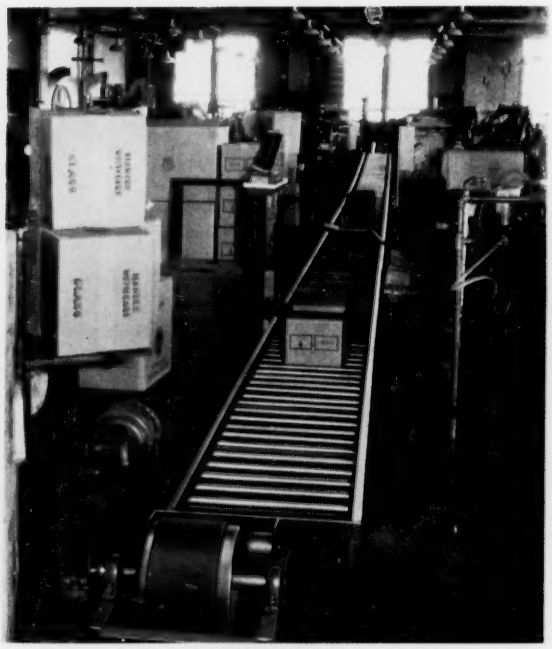
CAR LOADING

LIVE ROLLER C

THIS design differs from Belt Conveyers in that the means of carrying the load is not an endless belt, rather individual rollers driven by either a belt snubbed against the underside or by chain and sprockets, or gears. Live Roller Conveyers are adaptable to rough hard service, the seamless steel rollers will stand shock loading, abrasion, and rough usage which would otherwise be detrimental to a belt surface over a period of time. A feature of the belt-driven type is the possibility of handling containers intermittently without stopping the con-



SHIPPING



ELECTRICAL

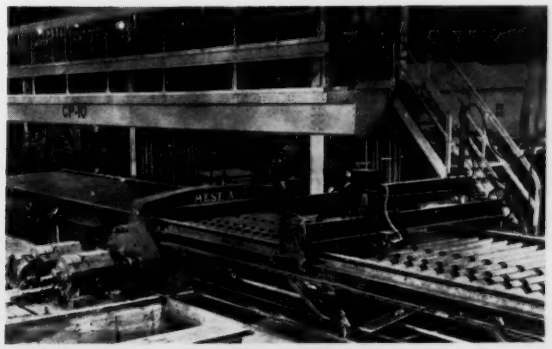
CONVEYERS

veyer, the rollers remain stationary beneath the containers while held against a stop; when the stop is released the containers move on to the next work station or point of processing.

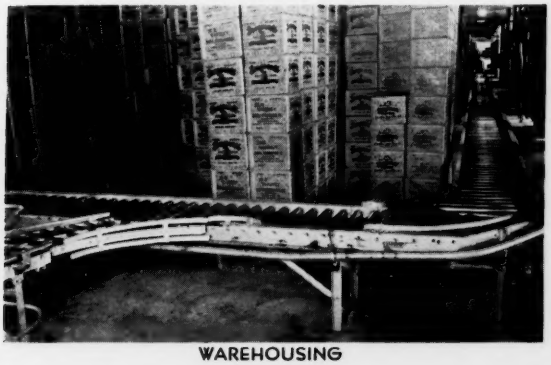
In the Chain or Gear-driven types the roller action is positive and surface speeds as high as 500 F.P.M. and more are employed. Examples in a number of industries are illustrated on these pages. In the Steel and Metal Working Industries, Chain-driven Live Roller Conveyers are used for handling billets, bars, shapes, and sheet steel in many forms.



INSULATION BOARD



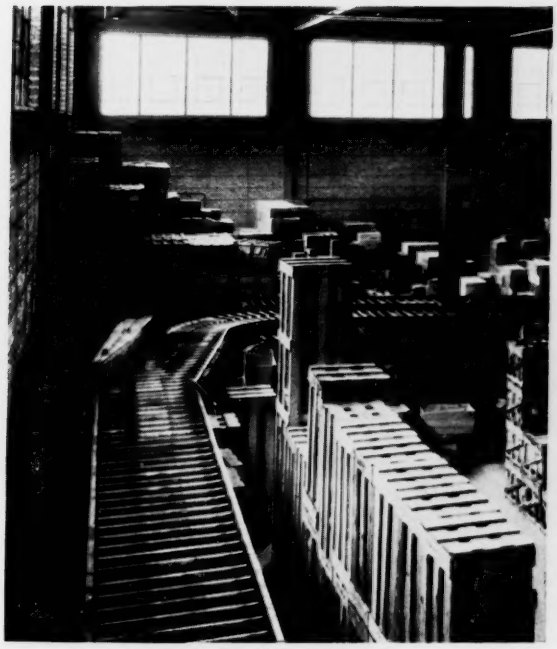
SHEET STEEL



WAREHOUSING



SHOES



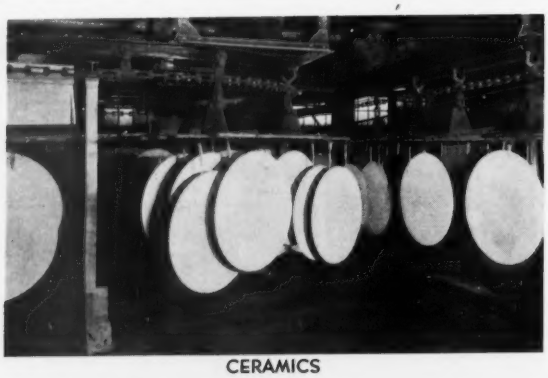
STORAGE AND SHIPPING



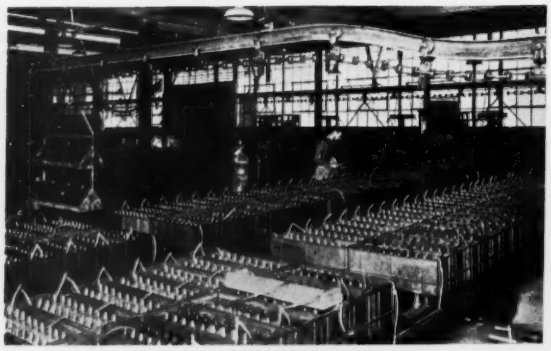
STRIP STEEL

TROLLEY C

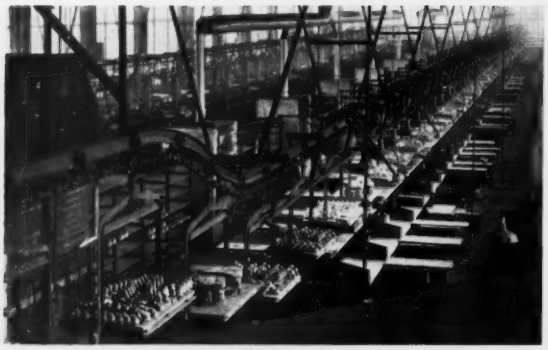
WHERE it is necessary to move a product from one machine operation to the next, through painting, drying, or enameling operations, from one floor to another in same or adjoining building, the Continuous (chain type) Trolley Conveyer is a most practical one to use. This type of conveyer is especially adaptable under conditions involving mass production practices and may be used as a mobile storage, providing a steady supply of materials for machine or assembling operations, or packer's use.



CERAMICS



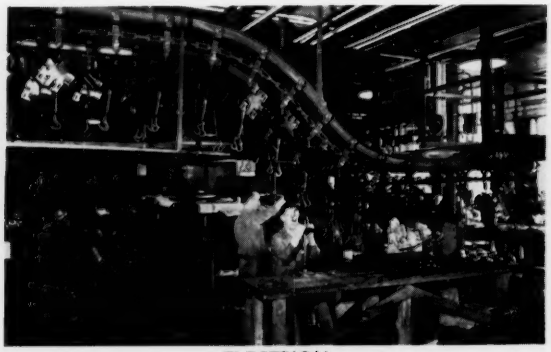
CHEMICAL



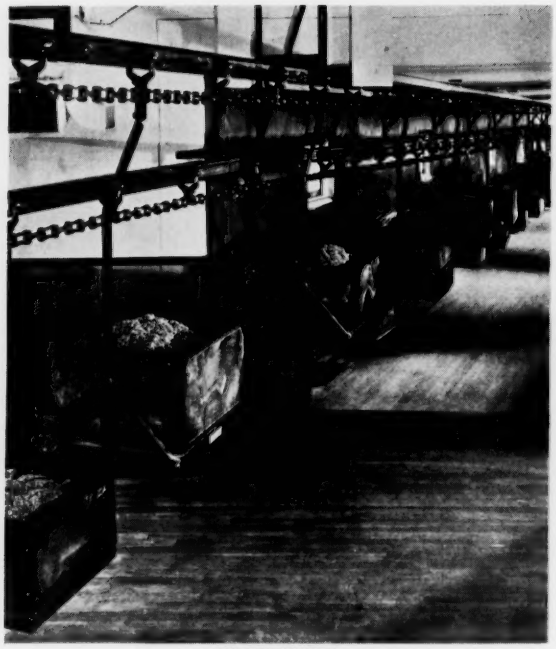
CORE MAKING



ENAMELED PRODUCTS



ELECTRICAL



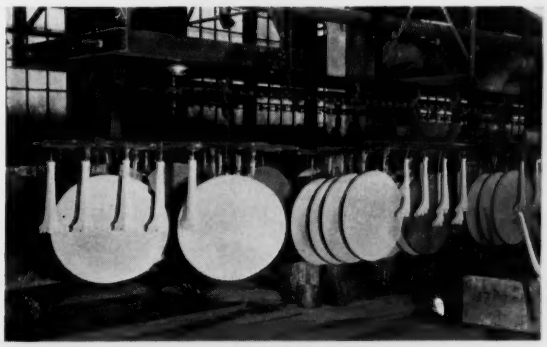
PROCESSING

CONVEYERS

Where floor space is at a premium, a Trolley Conveyer travels overhead, dropping to predetermined points to permit parts to be removed from or placed on its trays or hooks. Headroom in working areas and aisleway clearance is secured without hindering production operations. A number of interesting installations are illustrated on these pages indicating a diversity of application Mathews Trolley Conveyers are available in a range of sizes to accommodate light and heavy unit loads.



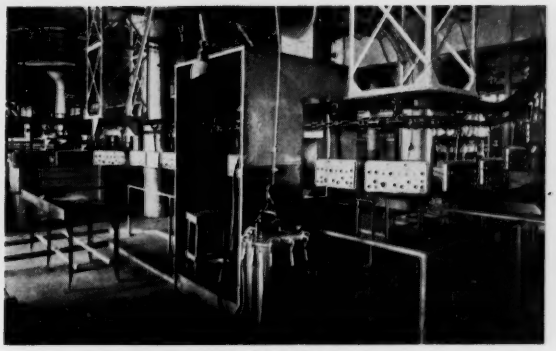
AUTOMOTIVE



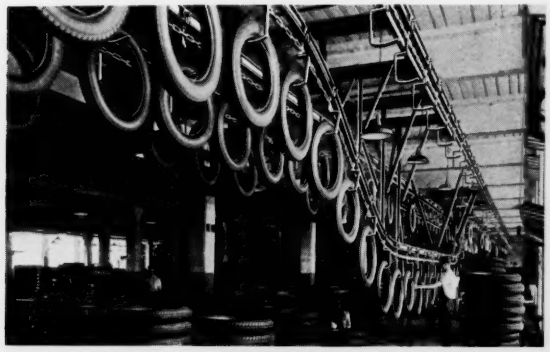
CERAMICS



AUTOMOTIVE



FINISHING



STORAGE

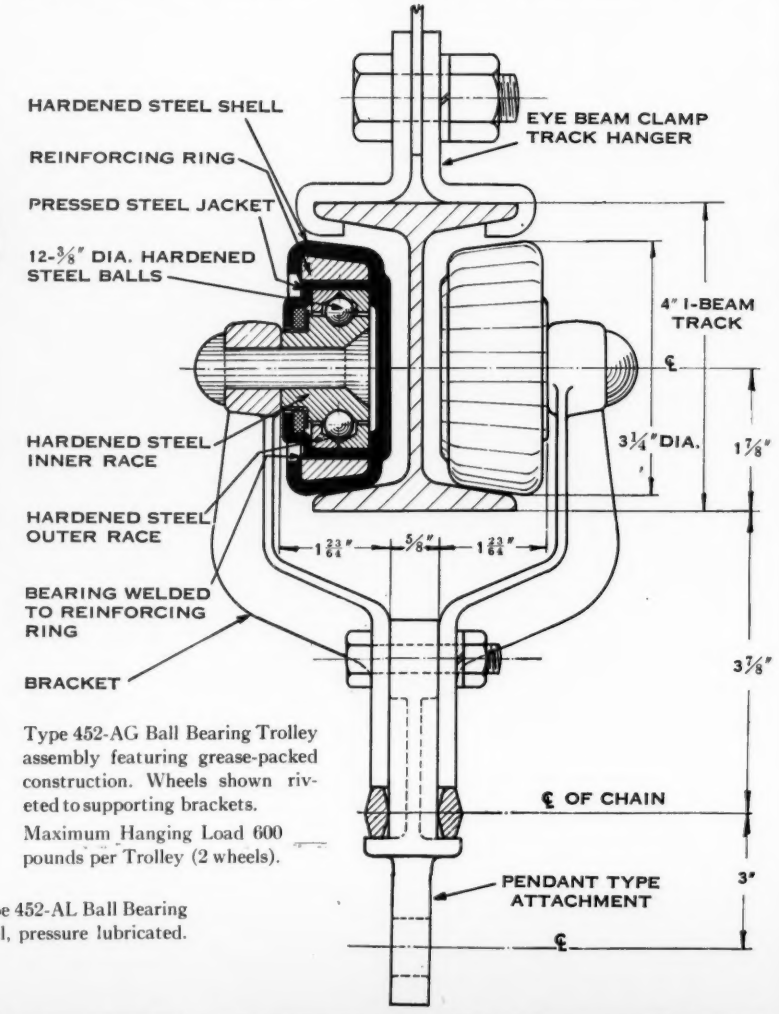


TOBACCO

TROLLEY WHEELS FOR 4" I BEAM TRACK

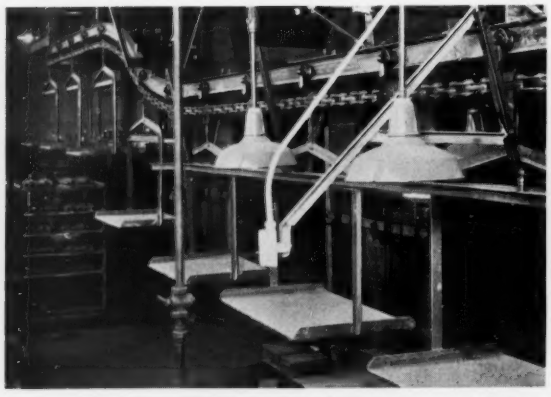


Mathews Type 452-AL Ball Bearing Trolley Wheel, pressure lubricated.

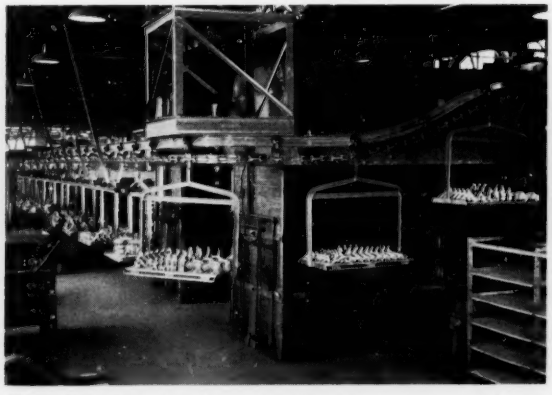


Type 452-AG Ball Bearing Trolley assembly featuring grease-packed construction. Wheels shown riveted to supporting brackets.

Maximum Hanging Load 600 pounds per Trolley (2 wheels).



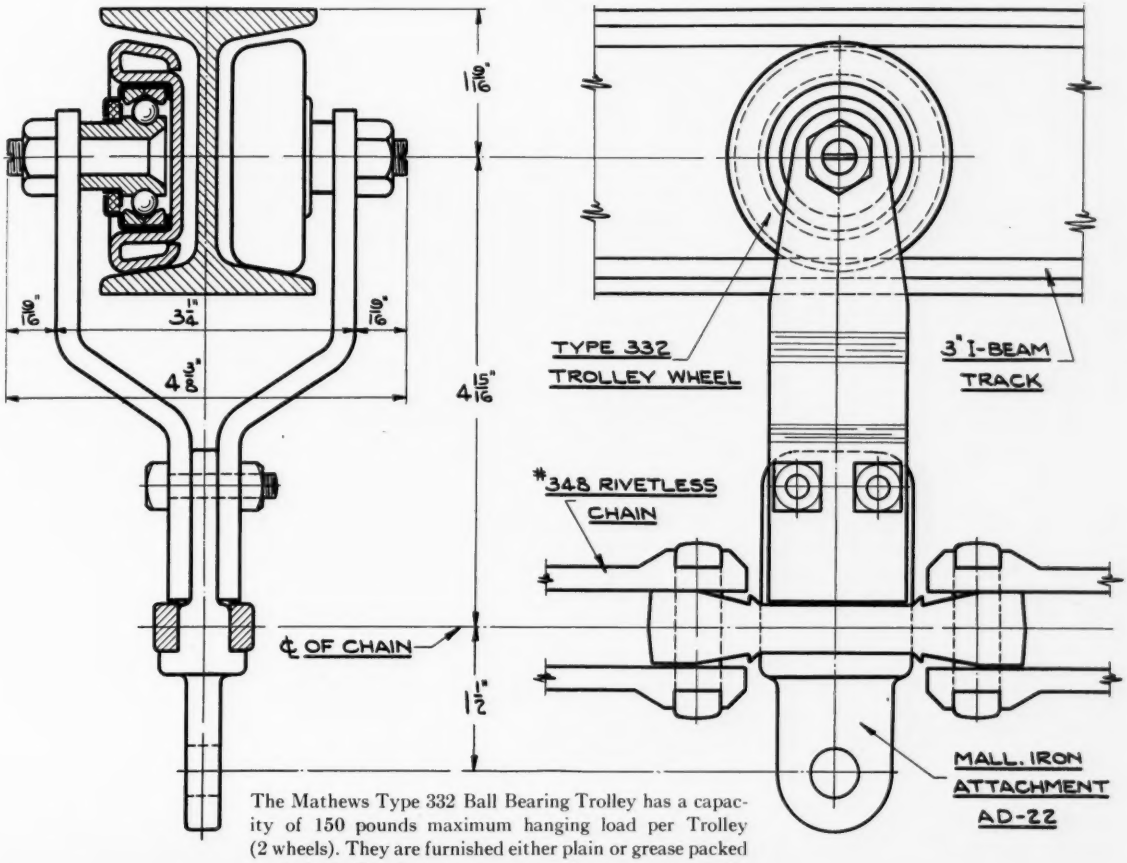
Mathews Trolley installation in which trays suspended from Trolley are used to convey small parts.



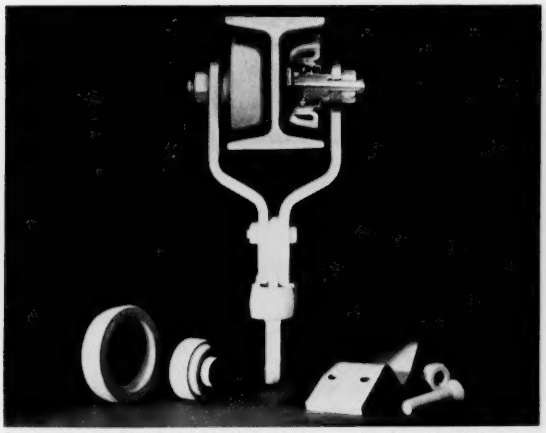
This view illustrates the construction of a corner or 90° turn and an inclined bend in the track.

XUM

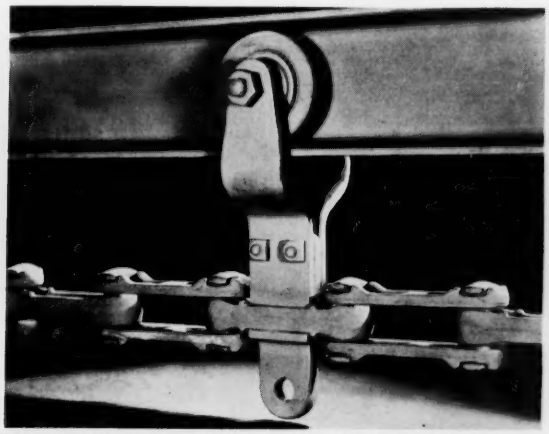
TROLLEY WHEELS FOR 3″ I BEAM TRACK



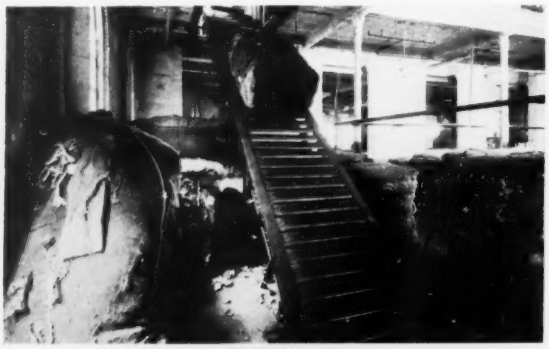
The Mathews Type 332 Ball Bearing Trolley has a capacity of 150 pounds maximum hanging load per Trolley (2 wheels). They are furnished either plain or grease packed as desired. The inner and outer ball raceways and the outer shell are hardened steel. The bearing incorporates 11 hardened steel balls $\frac{9}{32}$″ diameter.



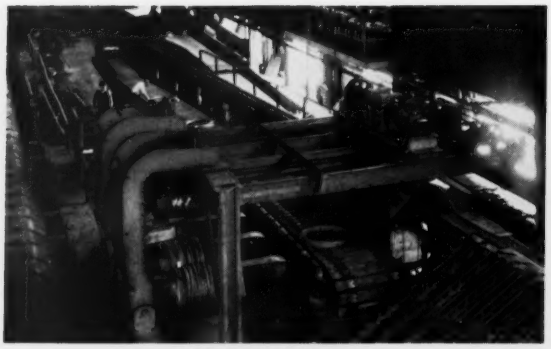
An unretouched photograph of the Type 332 Mathews Ball Bearing Trolley. Rugged construction, simplicity of design.



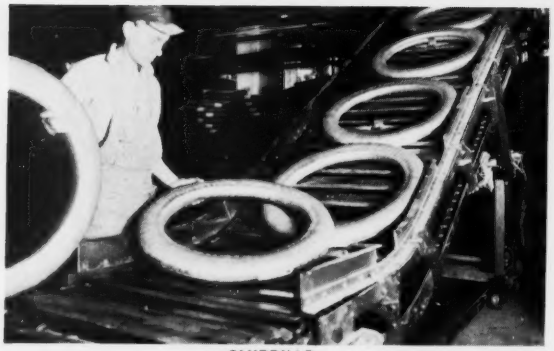
The view above shows a side elevation of the Type 332 Mathews Trolley assembled on a 3″ I Beam Track.



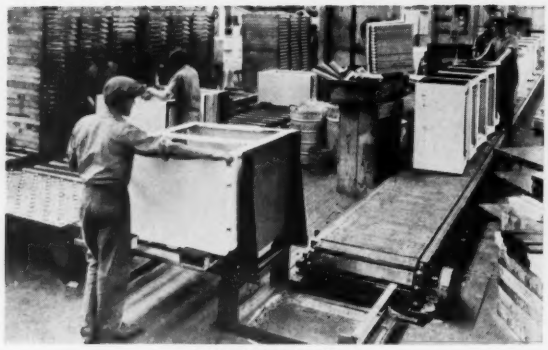
TEXTILES



COILED STEEL ROD



SHIPPING



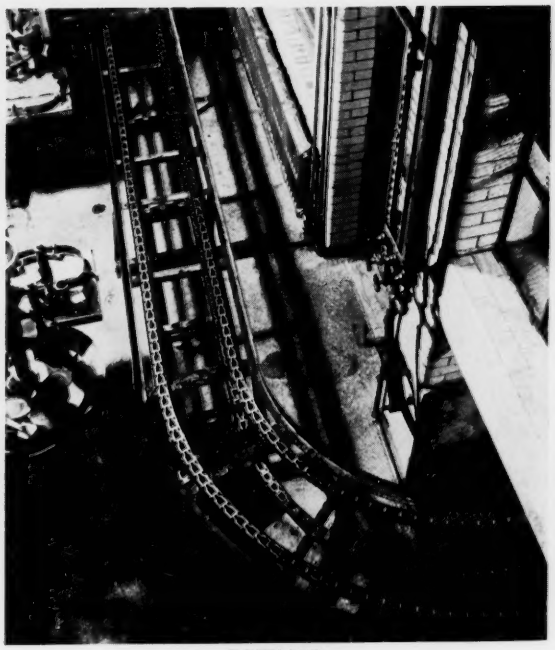
MANUFACTURING

CHAIN C

PALLET, Continuous Apron and Drag Chain Conveyers of various types come under this heading. Mathews Pallet Conveyers are available to meet practically any requirement where the service demands a means for handling commodities such as shipping cases, castings, stoves, barrels, bales, also machinery, gasoline engines, and pumps during assembly, bulk materials, such as turnings and small loose parts. The conventional pallet types are manufactured with wood or steel pallets, also steel channel pallets when necessary to accommodate heavy loads.



STRIP STEEL



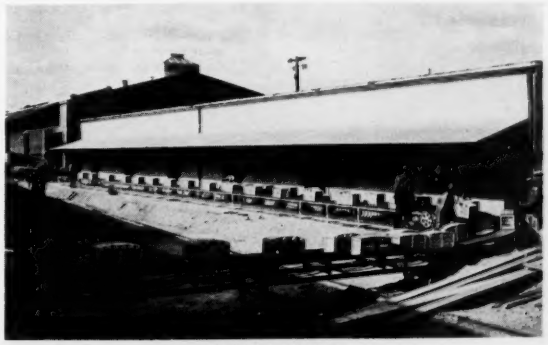
BOTTLING

XUM

CONVEYERS

Where it is desired to stop the load on the conveyer and not stop the conveyer, ball bearing roller type pallets are used, which revolve under the load while moving forward, permitting the load on the conveyer to remain stationary against a stop.

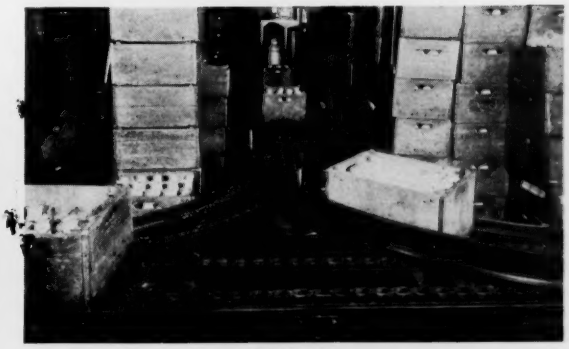
Pallet Conveyers may be set in a pit at floor level and arranged so that trucking of commodities may be accomplished without stopping the conveyer. This feature is desirable where the loading of freight cars is being expedited by the use of a Pallet Conveyer along a loading platform.



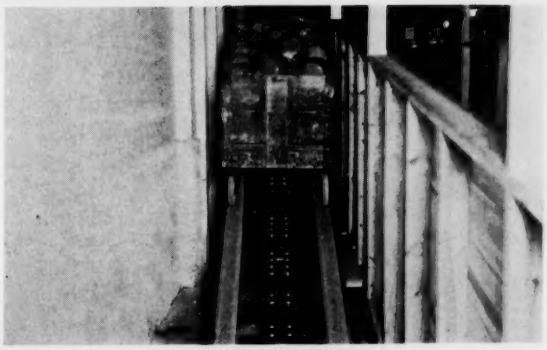
CITRUS FRUIT



MACHINERY



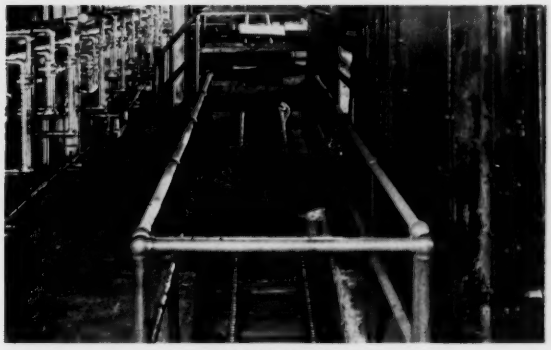
DAIRIES



RAMP CONVEYER



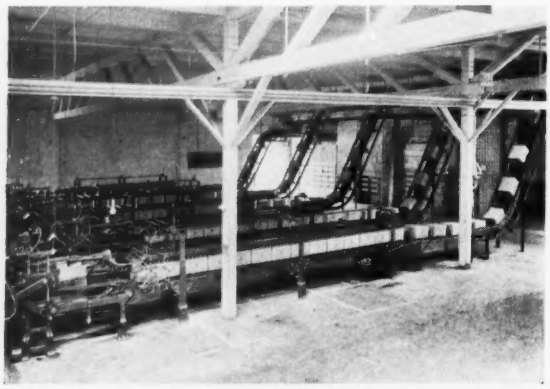
MACHINE SHOP



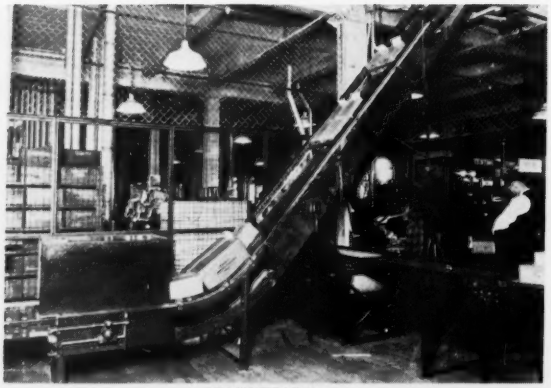
SHEET STEEL

ELEVATING C

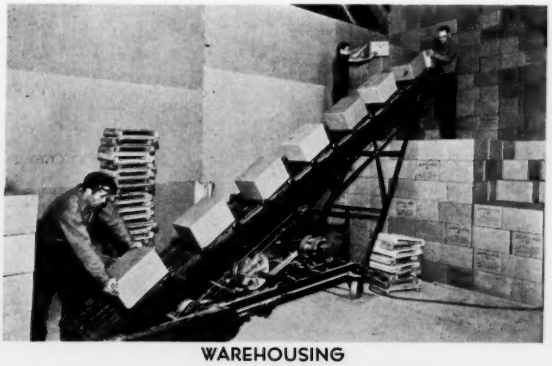
ELEVATING Conveyers come under three classifications: first, the Suspended Carriage type which operates continuously; second, Hoists which operate intermittently; and third, the pusher-bar type which operates continuously on an incline or vertically. The suspended carriage or vertical lift elevating conveyer serves the double purpose of elevating and lowering. Commodities may be taken from any floor and discharged at any floor either above or below the receive point. Various types of carriages make it possible to handle odd shapes, such



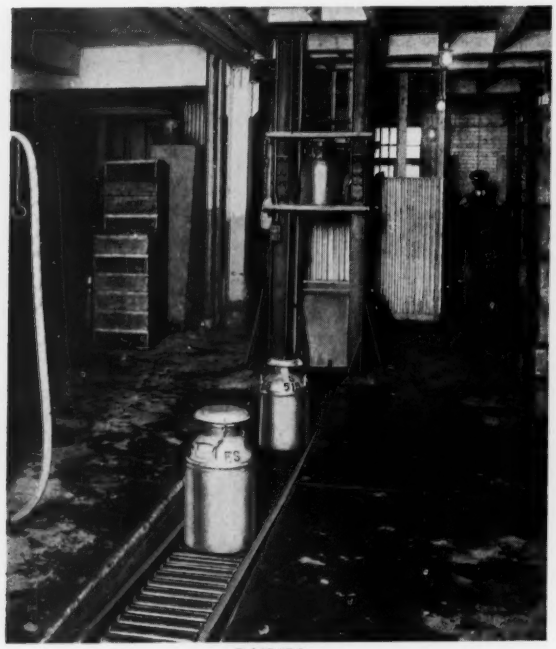
FOOD



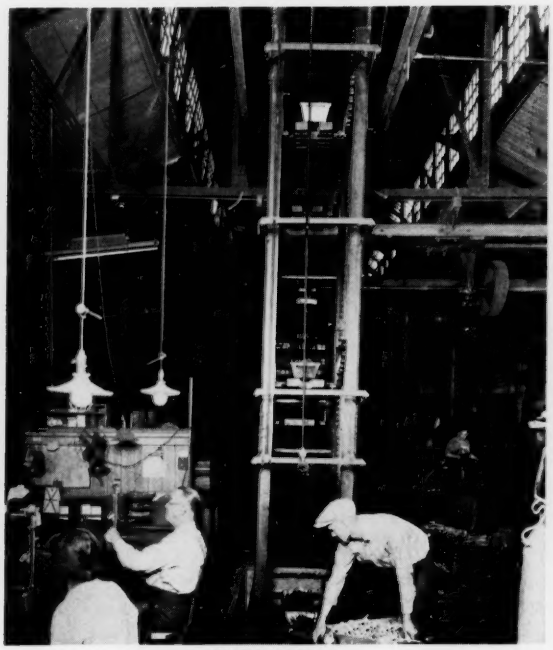
ELECTRICAL



WAREHOUSING



DAIRIES



AUTOMOTIVE

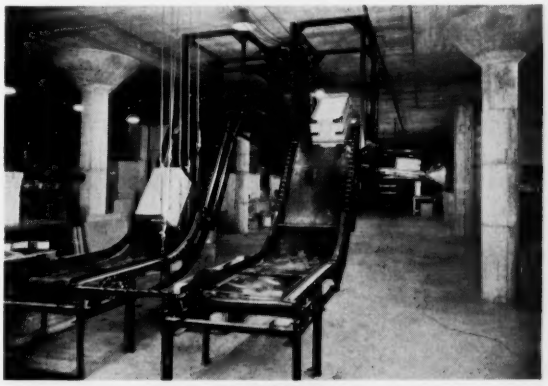
XUM

CONVEYERS

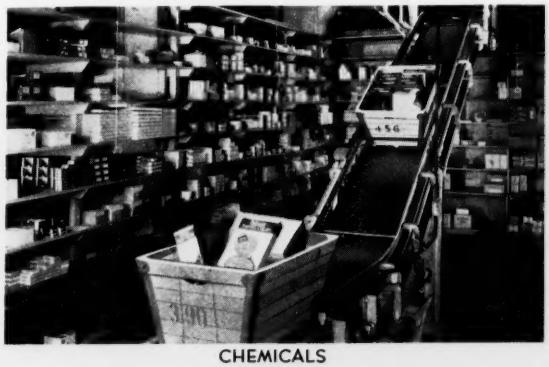
as rolls of cloth, cubes, barrels on end or on their bilge, milk cans, oil drums, and kegs.

The vertical Hoist, while performing a service similar to a straight lift, operates intermittently, and is usually contained within the confines of one or two floor levels.

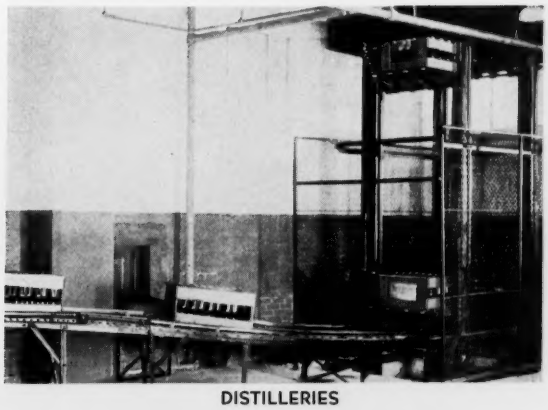
Pusher-bar conveyers operate in a continuous manner and are made in standard units of 30°, 45°, 60° of inclination or vertical. The illustrations on these pages indicate the possibilities of various elevating conveyers.



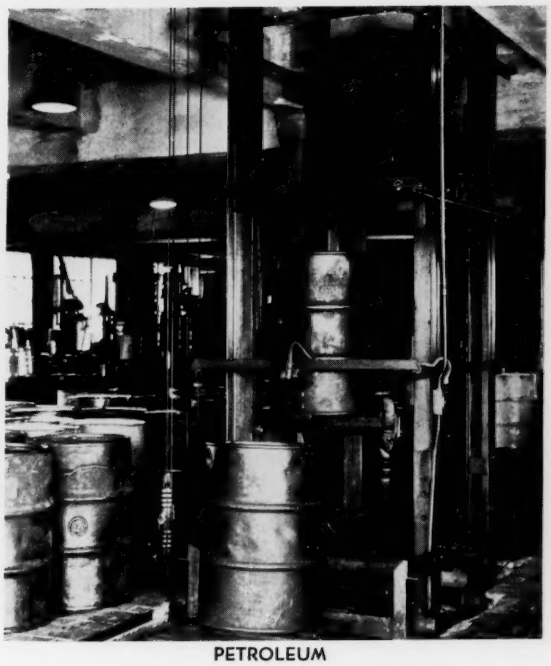
LEATHER



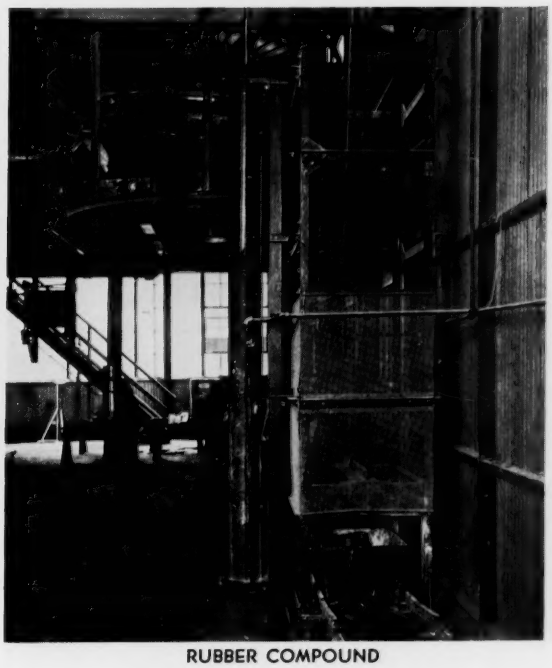
CHEMICALS



DISTILLERIES



PETROLEUM



RUBBER COMPOUND

ROLLER SPIRAL C

ROLLER Spiral Conveyers consist of a number of curved sections of roller conveyer set in the form of a spiral and mounted in a structural steel frame. They offer several advantages over other methods of lowering commodities, permitting a slow and easy descent, eliminating the necessity of a power installation. They have the distinct advantage of allowing for sizable storage, which other types of lowering devices cannot permit.

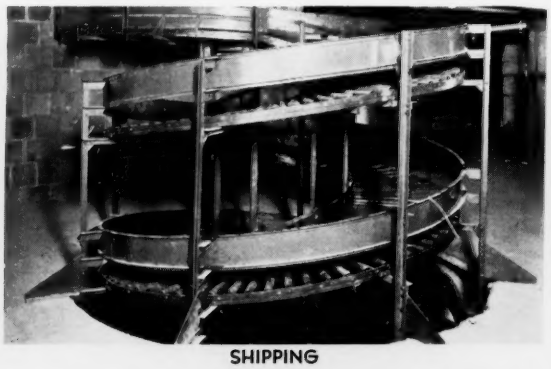
Owing to the slow and easy descent, open boxes or trays can be handled without spilling the con-



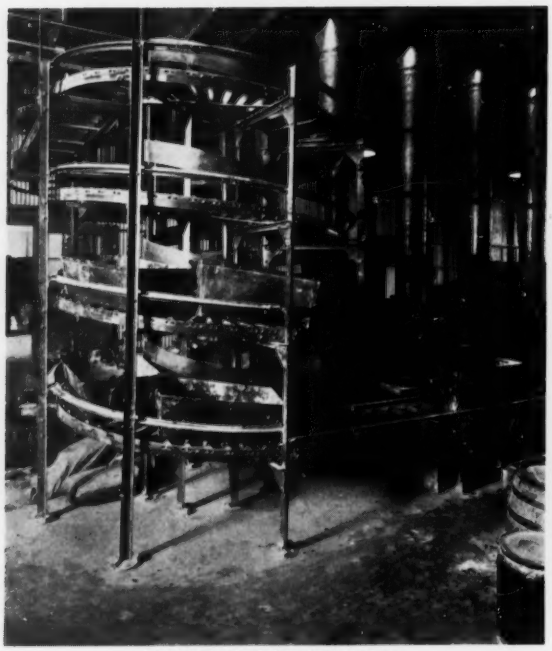
FOOD



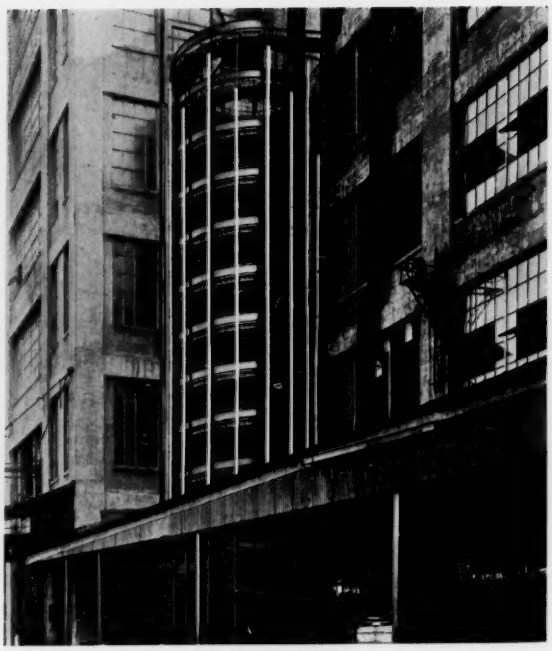
OPEN CARTONS



SHIPPING



RUBBER COMPOUND PANS



MULTI-STORIED

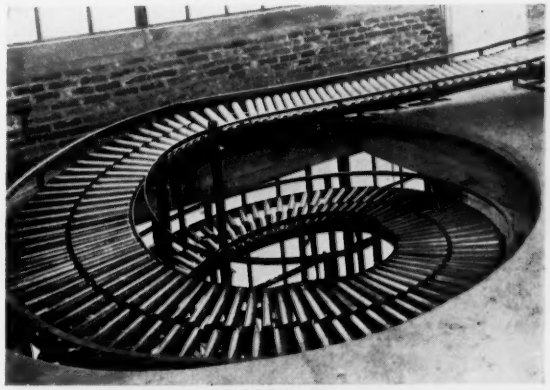
XUM

CONVEYERS

tents; barrels can be conveyed in an upright position, and fragile articles can be conveyed in containers without injury. Commodities may be brought to a Roller Spiral conveyer from distant points and delivered to it automatically; likewise the commodities may be conveyed from the discharge point of the spiral to any desired location.

Both continuous and intermittent operation can be secured with this design.

In many plants the roller spiral alleviates freight elevator traffic.



ELECTRICAL



TEXTILES



MANUFACTURING



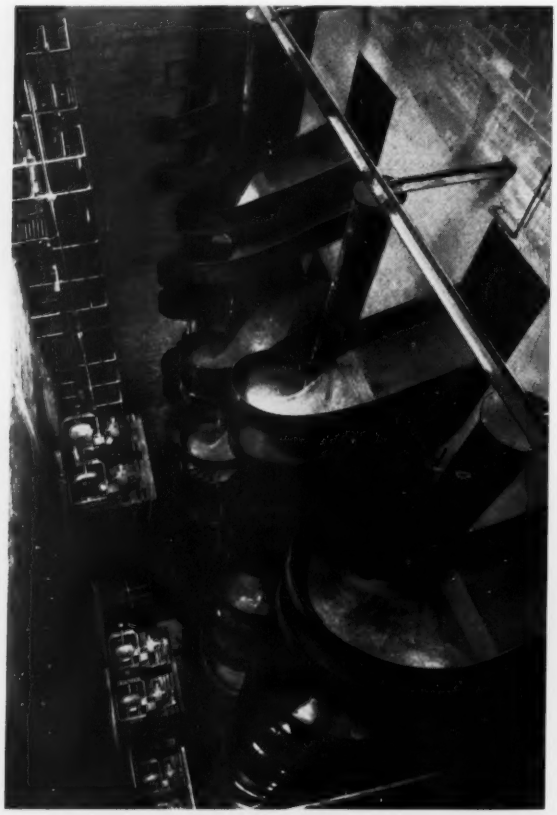
CARTONS SHOES



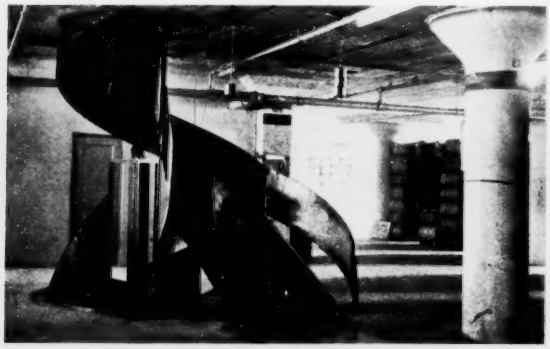
CARTONS CIGARETTES

SPIRAL

MATHEWS Spiral Chutes are made with either flat or concaved treads (standpipe, open core or enclosed types). By using the force due to gravity, commodities of all kinds may be lowered from one floor to another, quickly and without damage. Spiral Chutes are made to accommodate practically any number of floors and may be arranged with intermediate receives or discharge stations as required. They require little floor space and in many cases are installed in existing shafts or wells. Their intakes



DOUBLE BLADED CHUTES



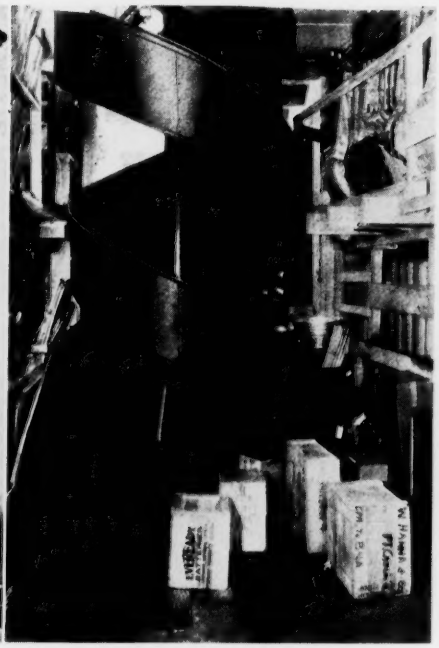
OPEN CORE TYPE



STANDPIPE TYPE



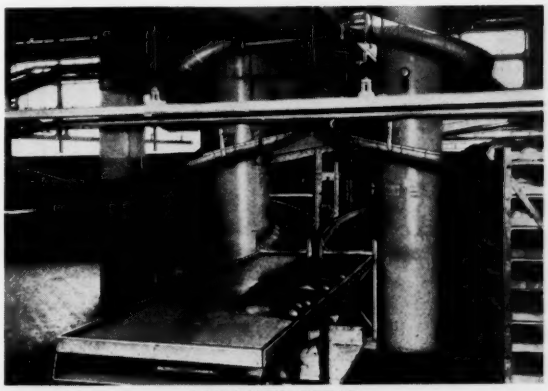
ENCLOSED TYPE



DOUBLE BLADED

CHUTES

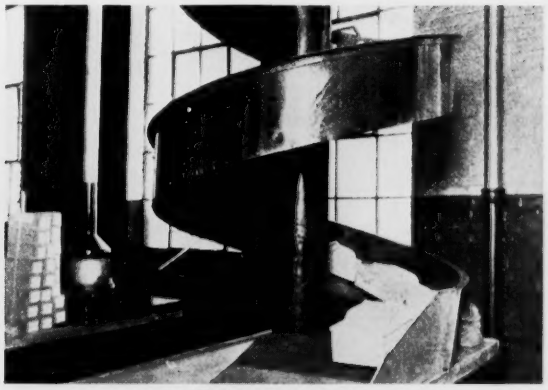
and outlets may be fully protected by either vertical sliding or hinged type fire doors, controlled by fusible links. Chutes having single, double or triple treads for lowering commodities from and to various floors and departments are not unusual. Various possibilities of the sheet metal Spiral Chutes are illustrated on these pages showing a variety of commodities conveyed in this manner, including Spiral Fire Escapes of similar design which are a part of a varied and extension line.



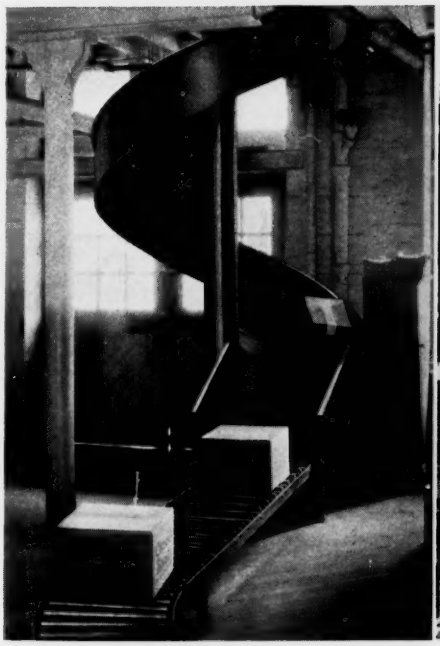
CONCAVED TREAD



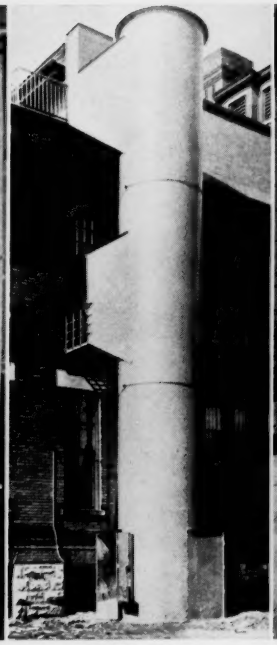
OPEN CORE TYPE



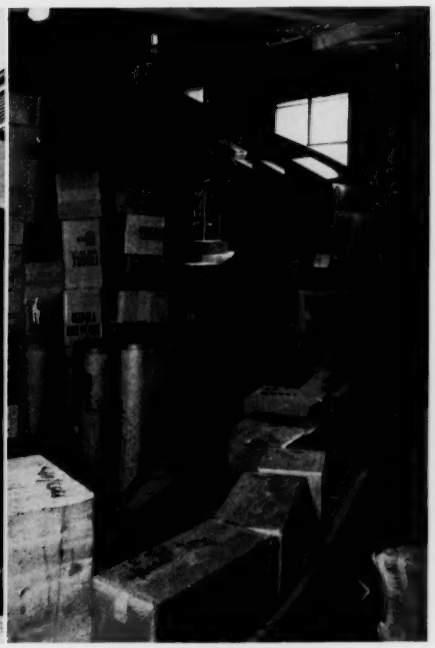
STANDPIPE TYPE



STANDPIPE TYPE



FIRE ESCAPE



OPEN CORE TYPE



Table type BALL Transfer. Note application in photograph at bottom of page.

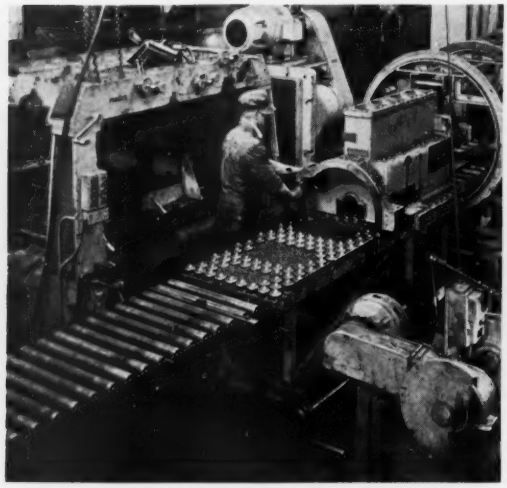


Elevation of BALL Transfer showing large diameter ball protruding above ball cleaning cap. Height of BALL Transfer is 1¾" from base to top of ball.

MATHEWS BALL

MATHEWS BALL Transfers, Types 201, 201-A, 202, 202-A and 500, are designed to accommodate the movement and transferring of objects having smooth, hard riding surfaces, in any direction on a horizontal plane. They are particularly suited for transferring boxes from one conveyer line to another, for moving flat bottom objects on and off scale platforms, stacking machine and hoist platforms, for the movement of tote boxes of parts about machines, for manipulating plates and sheet steel about shears, and for use at cut-off machines where tubing to be cut to size revolves during cutting operation.

Types 201 and 201-A are furnished with a base suitable for mounting on a flat surface, such as a steel plate or table



A transfer car equipped with type 201 ball transfers delivers cylinder block castings to machining operation.



Motor pumps are inspected, crated and transferred 90 degrees to shipping department over Mathews BALL Transfers.

BALL TRANSFERS

top. Each of these two types have the same load capacity, i.e., 100 lbs. each. Types 202, 202-A and 500 as designed with a threaded base for mounting on vertical 2" pipe standards. All five types are fundamentally the same from a design standpoint; consisting of a large diameter hardened steel ball which rotates on a bed of smaller balls held in a hardened steel, self-cleaning cup-shaped base. The types 202, 202-A are rated 100 lbs. capacity and the type 500 at 250 lbs. capacity each.

An outer casing acts as a ball cleaning cap, its knife edge resting on the large ball, deflecting dirt and other foreign matter to the floor. Small particles getting into the ball raceway are automatically eliminated through a hole in the base of the ball raceway. (Refer to illustrations on these pages.) Types 202, 202-A and 500 may be set into the floor and spaced around machines such as shears and punch presses, to facilitate the handling of steel plates or other objects. Installations shown indicate the possibilities of Mathews Ball Transfers throughout industry.

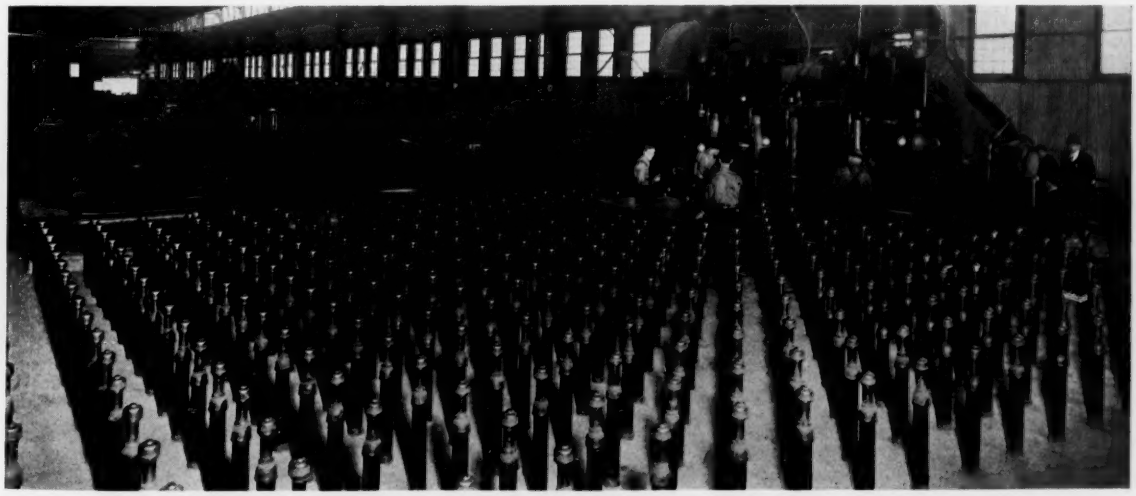


Types 202 and 202-A BALL Transfers are similar to type 500 in that they are mounted on vertical pipe standards. Rated capacity 100 lbs. each. Threaded base accommodates 2" standard pipe support. Height of BALL Transfers is 2 3/8" from base to top of ball.

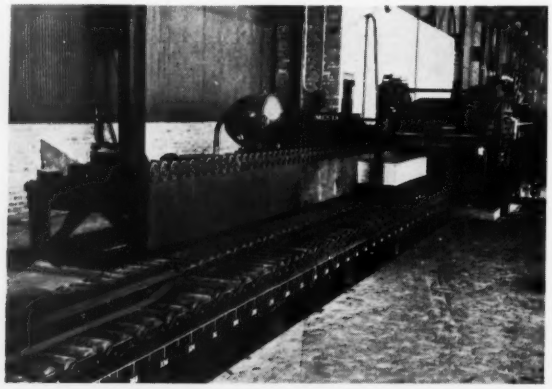


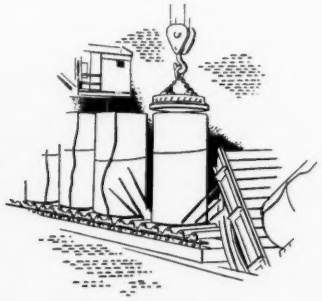
PATENTED

Type 500 BALL Transfers with threaded base accommodate a 2" standard pipe support. Rated capacity 250 lbs. each. Height of BALL Transfers is 3 9/16" from base to top of ball.

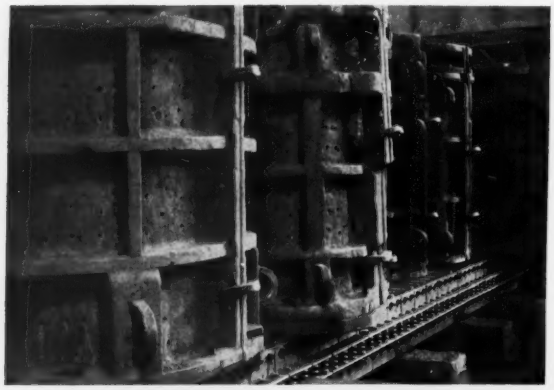


Type 500 BALL Transfer Installation. Two operators manipulate 5-ton steel plate at shear on this mobile surface of Mathews BALL Transfers.

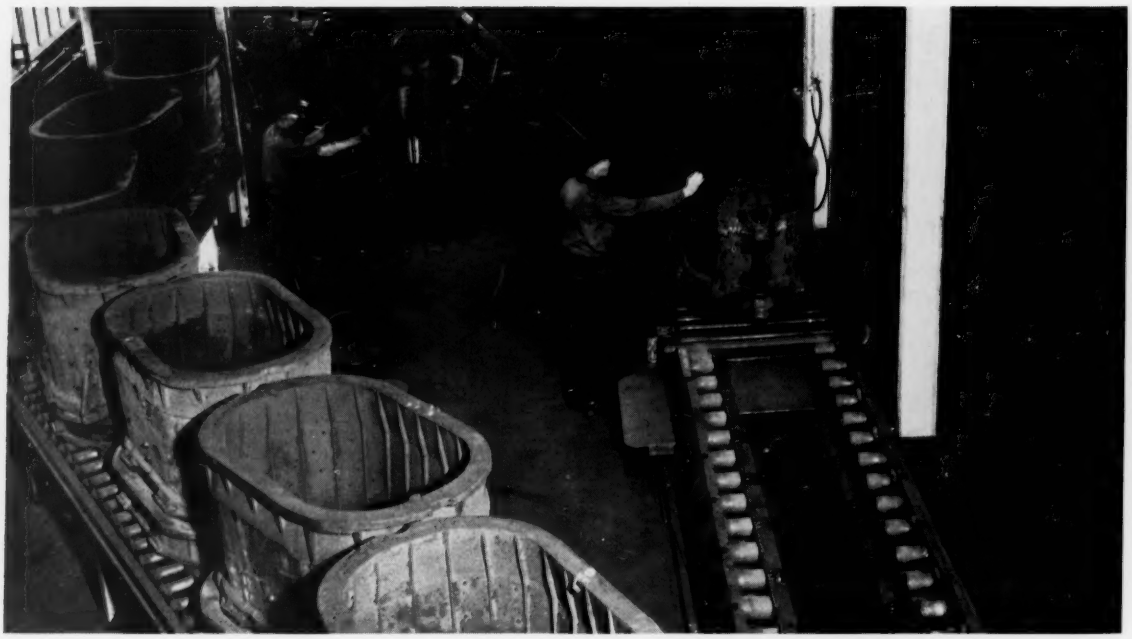




SPRING MOUNTED CONVEYERS



HAVING pioneered the development of Ball Bearing Roller Conveyers, it is only natural that Mathews Engineers constantly strive for improvement in their design. Through the obvious necessity in many Industries for Spring-Mounted Roller Conveyers, Mathews engineered this far-reaching, and most outstanding development since introducing Ball Bearing Roller Conveyers over thirty-three years ago.

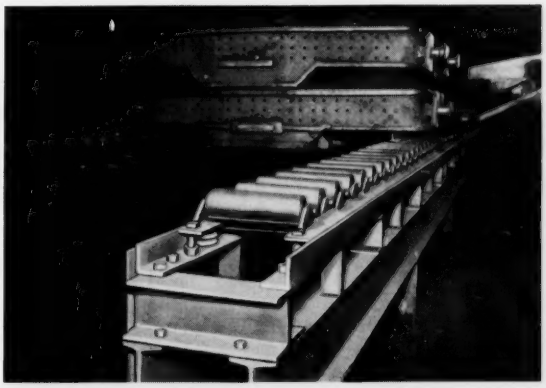


XUM

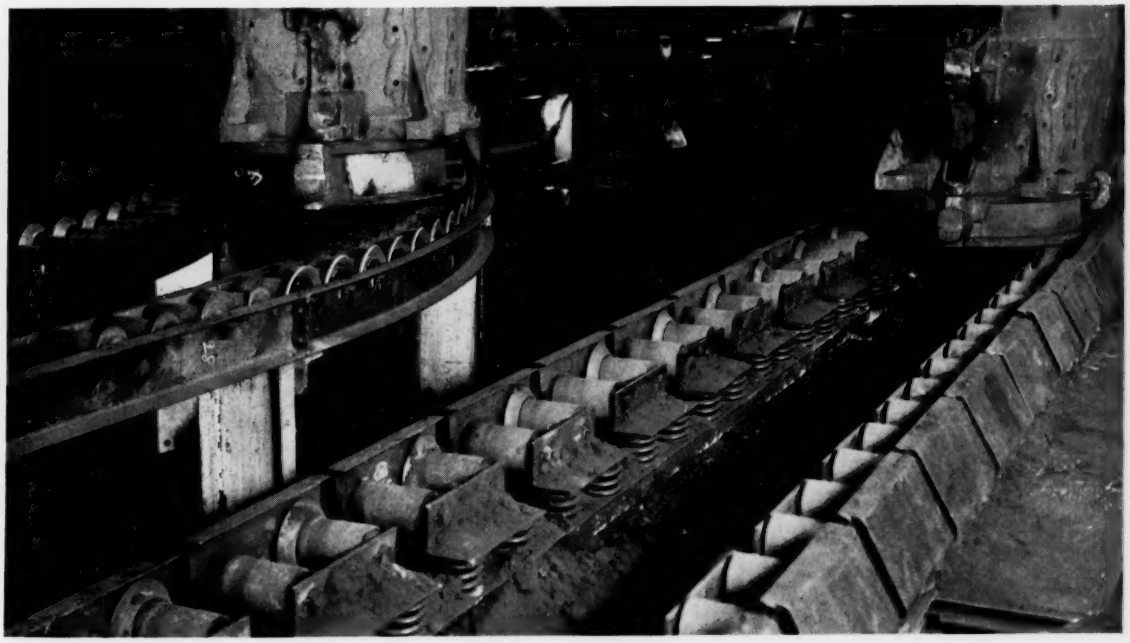
With the exception of improvements in bearing design there has not been a single major development of outstanding importance in the design and manufacture of Ball Bearing Roller Conveyers since their inception except the Spring-mounted design.

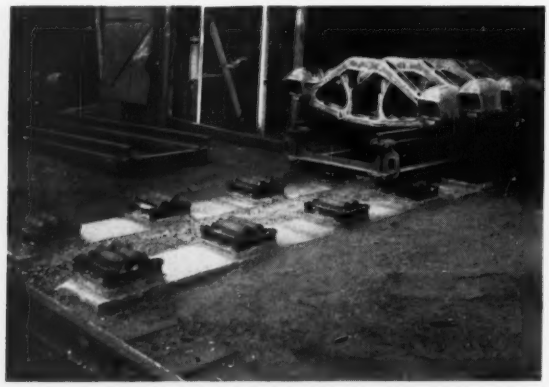
For over thirty-three years Roller Conveyer has been built with the solid mountings and accepted as sound in principle and economical in cost and maintenance. The term "solid mounting" pertains to designs offered today which permit the rollers to rotate freely, but do not allow for movement either vertically or transversely. In other words, rigidity prevails everywhere except roller rotation.

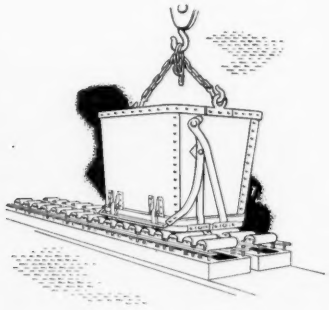
In the Spring-mounted designs (illustrated at the right), roller axles are rigidly locked in the frame, as before, but the frame is carried on pre-compressed coil springs. The springs are always under tension equal to the rated safe load per roller. Under impact the springs take the excess load. When the load being conveyed is unevenly distributed and would be carried on too few rollers, the springs again take the excess load per roller and the rollers adjust their heights so that the load is properly distributed.

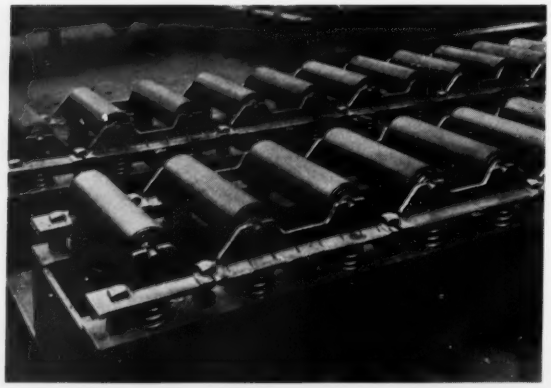






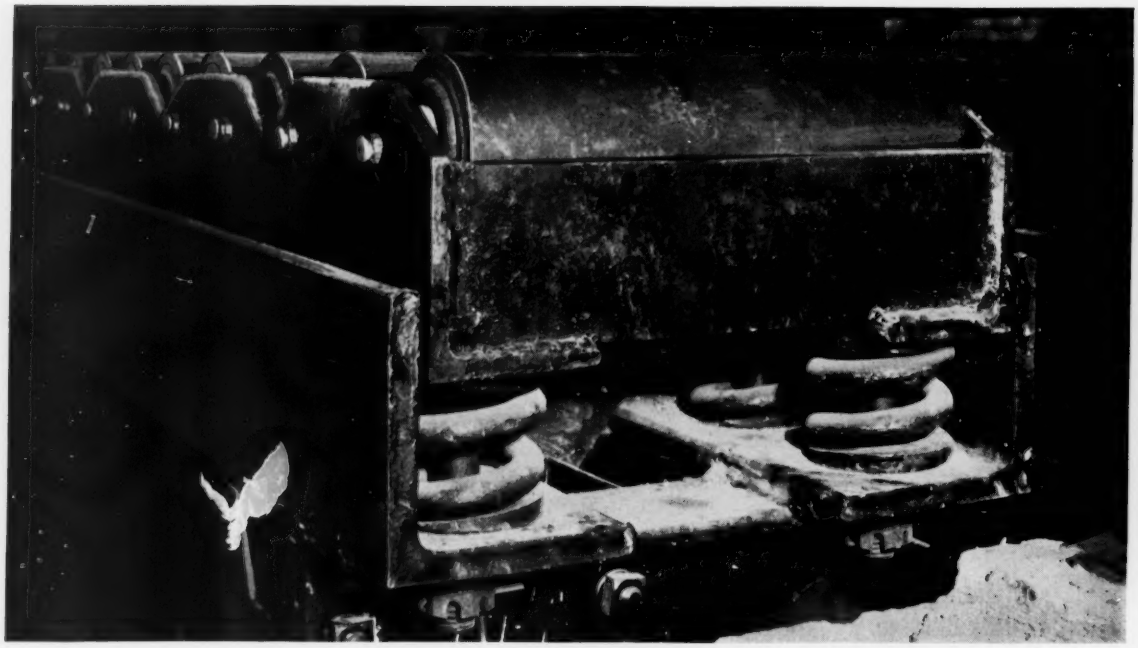






SPRING MOUNTED CONVEYERS

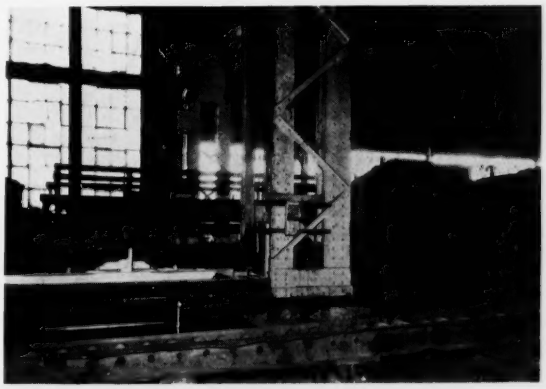
THE photographs on this and the two preceding pages represent Spring-Mounted Conveyer installations and show the possibilities of this unique construction. Bearing failures are reduced to a minimum, rollers take their respective share of the load regardless of riding surface of the commodity being conveyed or the shape of the skids used, if any. Since announcing this developing less than a year



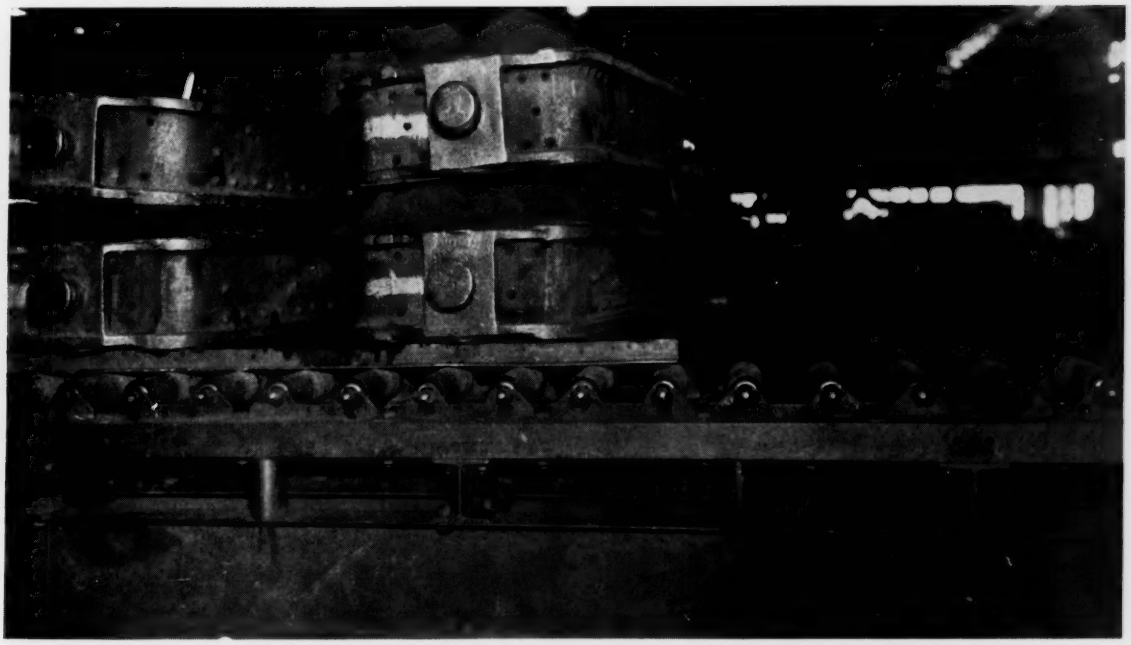
ago, 16 companies have purchased 26 separate systems. Malleable, Grey Iron, and Steel Foundries, Steel Producers, Automotive and Machinery Manufacturing, Electrical Appliances, Railroad Equipment, and Non-Ferrous Fields being represented.

The three views on this page illustrate a test made over a period of twelve months in actual practice. Both systems were installed September 1936. The photographs of both systems were made September 1937. Each system comprising two parallel lines conveyed the same unit loads for this twelve month period: i.e., Flask and Sand weighing 4500 pounds. Note the condition of the rigid type (shown at left) and Spring-Mounted type (shown below). In the case of the rigid construction, bearing failures were frequent, maintenance cost prohibitive, while the Spring-Mounted Roller Conveyers required no repairs whatsoever.

Mathews Resiliently Mounted Ball Bearing Roller Conveyers are Covered by United States Patents 1,518,836; 2,077,188; 2,077,189; 2,077,190; 2,107,822; other patents pending.









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attendant. Inspection and packing should be done immediately after the operator removes the labeled article from the machine and, in the choice of the labeler, this feature should be strongly considered so as to eliminate unnecessary and costly handling charges.

There are semi-automatics on the market capable of applying more than one label onto the package at one time and applying the foil onto the neck of the bottle, as used in the "soft" drink industry. They are capable of handling articles which the larger and faster fully automatic machines could not be capable of, such as delicate perfume vials, serum tubes and other highly fragile articles; also the handling of such items as cartridge fuses and battery tubes.

The labeling of paper boxes with paper or paper-backed foil labels or heavily embossed metallic seals, the manufacture of greeting cards, calendars, photomounts, the labeling of cigar boxes, wooden articles, attaching of paper handles to drinking cups, certain types of transparent material to folding box windows, etc., can be accomplished by some of these semi-automatic models.

It will be seen, therefore, that although the hand-fed labeler was originally designed to "spot" a label to a bottle or jar, still certain type can often be put to the most diverse uses.

Automatic labelers can be segregated into two divisions, namely, (1) the rotary type, (2) the straight line variety.

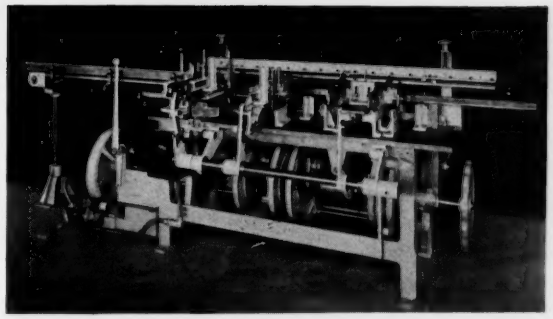
The rotary type of fully automatic labeler uses method No. 1 for the application of the label and, as mentioned under the semi-automatic heading, it is also capable of applying more than one label simultaneously, together with the foil neckband if desired. Consequently, it is particularly adaptable to the soft drink, beer, ale and other similar industries.

The bottles are taken from a conveyor by means of a star wheel or similar mechanism and timed through the machine. They are automatically ejected onto a conveyor and led away from the equipment to be inspected, packed or stored. They can attain speeds of 85 to 90 per minute.

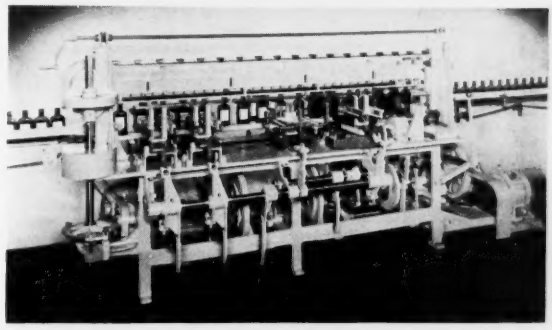
The straight line type, being of more recent design, can be used more universally as its construction allows a wider latitude in the shape of the containers and greater accuracy in the "spotting" of the label. All four methods described above are used in the feeding and attaching of the labels. Further, their design allows the adhering of front and back labels simultaneously and, by duplexing (i.e., labeling two articles at a time), higher speeds are obtained than with the rotary type. Productive capacities of 120 per minute are obtainable.

As in the case of the rotary type, the packages are led to, and away from, the machine by means of conveyors. They are introduced mechanically in a synchronized manner into the machine so as to be properly timed with the labeling operation.

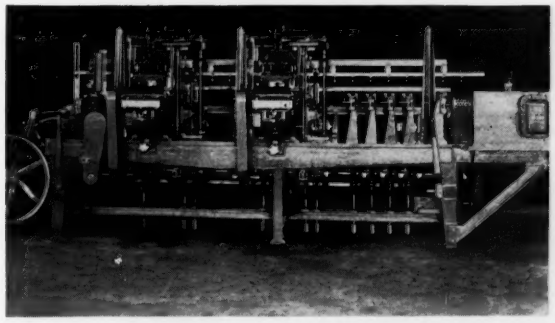
Certain types of labelers are equipped with indexes so that, should there be no package in the labeling station, no label will be fed. This naturally eliminates unnecessary waste of labels.



4. Automatic all-around spice can labeling machine. Photo courtesy Pneumatic Scale Corp., Ltd.



5. High-speed straight line duplex front and back labeler. Speed 100 containers per minute. Photo courtesy Pneumatic Scale Corp., Ltd.



6. High production double or tandem type straightaway labeler. Photo courtesy Economic Machinery Co.

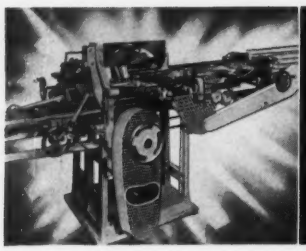
Special units are built for a wide variety of requirements, such as labeling both ends of a spool of thread, applying labels to one or both ends of a cardboard shoe box or hosiery box, applying all-around labels to rectangular spice canisters, to mention a few.

In choosing labelers, as already mentioned, plant conditions, shape of package, production, number of changes, etc., play the important role as to whether the hand-fed or fully automatic machine should be installed.

In choosing the type of labeler, certain essential points should be borne in mind and these can be listed as follows:

1. The type of label material to be handled—whether plain paper, varnished or lacquered, or foil labels or metallic seals.

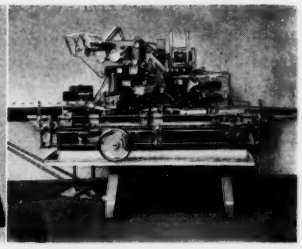
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Model FA-Q—Quickly adjustable wrapping machine. Handles a wide range of package sizes. Adjusted for a new size in 10 minutes.



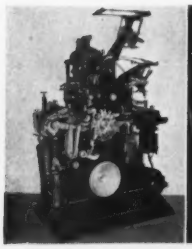


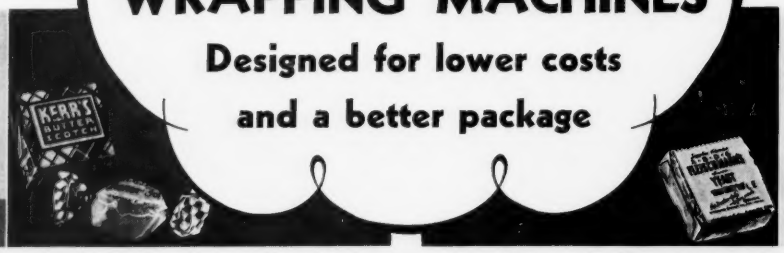


Model CA-2—Completely automatic machine for wrapping chocolate bars and other products. Handles printed foil, glassine, cellulose and other materials in roll form. Electric Eye locates printing accurately on bar. Adjustable for many sizes.

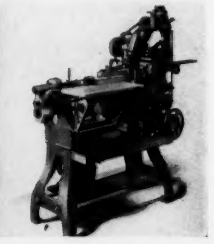
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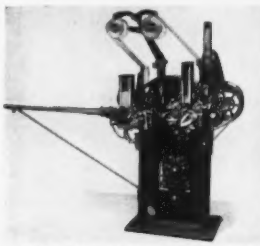


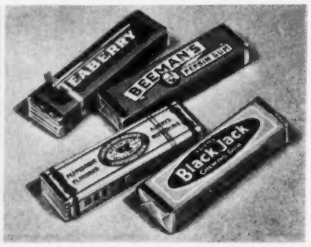


Model 42—Plastic Cutting and Wrapping Machine. Cuts and wraps caramels, toffee, and similar candy in fold-wrap style (heat sealed). Speed 250 to 500 per minute.

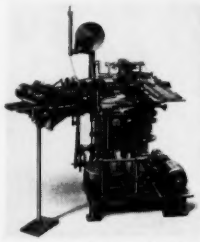


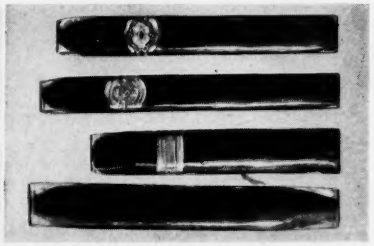
Model AF—Cuts standard ¾ oz. yeast cakes and wraps in foil, applying sticker. Makes a firm wrap without distorting cake. Speed 110 per minute.



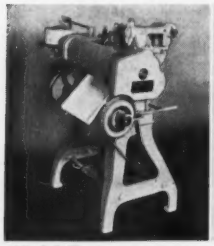


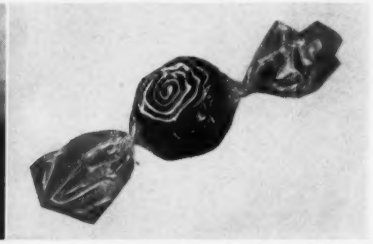
Model AC—Makes standard 5¢ chewing gum package, performing all operations . . . wrapping and banding each stick individually . . . then assembling 5 sticks . . . then banding package with printed label. Extremely high speed—600 sticks per minute.



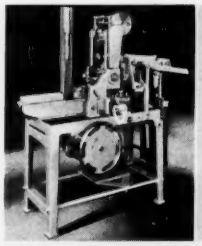


Model 16—Wraps cigars in transparent cellulose or foil. Uniform, neat wrapping. Makes square end folds with wrapper turned under. Heat sealing controlled by thermostat. Handles different sizes. Speed 60 to 70 per minute



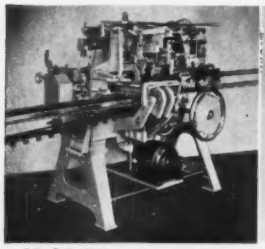


Model K—Cuts and wraps candy kisses. The operator partly spins the batch and feeds it into the machine, which completes the spin, cuts the kisses and wraps them with twist ends. Speed 160 per minute.



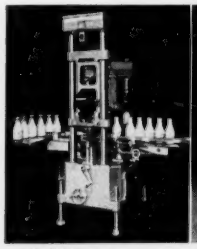


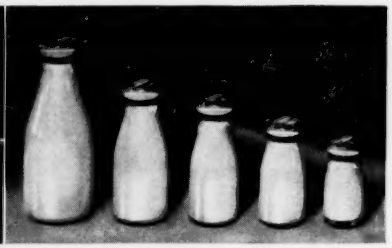
Model AA—For wrapping packages of cigarettes, razor blades, candy, etc., in transparent cellulose, glassine, waxed paper, etc. Makes exceptionally tight seal. Adjustable for various small sizes.





Model GH-2—For wrapping bars or open boats. Handles a wide range of sizes and shapes. Electric Eye registers printing accurately from material in roll form—more economical than cut-to-size sheets.

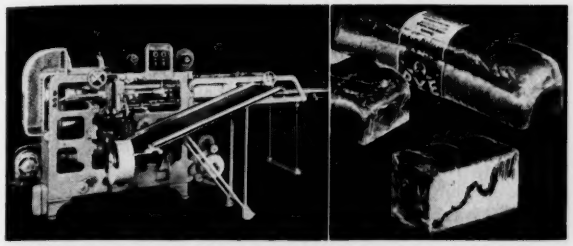




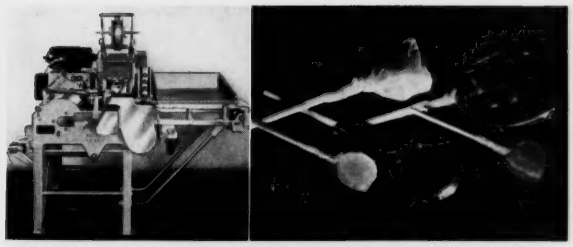
Model BH-6—Milk bottle hooding machine. Forms hood from "Cellophane" and sealing tape (in roll form). Works directly from production line. Variable speed 35 to 65 bottles per minute.

PACKAGE MACHINERY COMPANY.

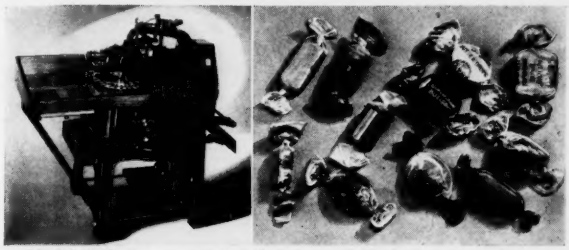
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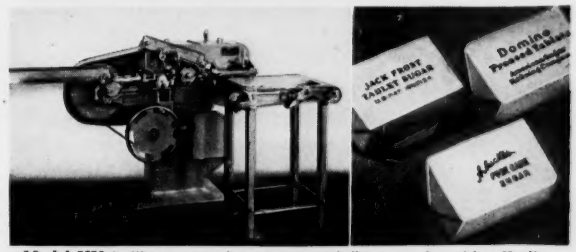
Model BW—Bread and Cake Wrapping Machine. For bakers producing 2,000 to 3,000 loaves per hour. Adjustable for a wide range of sizes.



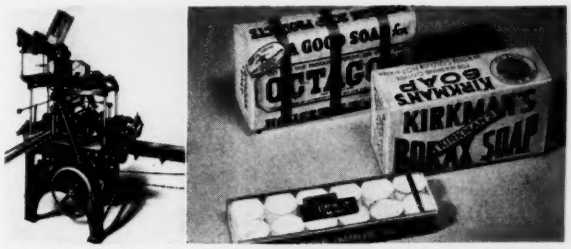
Model LP-2—Designed for wrapping pops of various sizes and shapes. Speed 110 per minute. Uses waxed paper, glassine, or transparent cellulose in economical roll form.



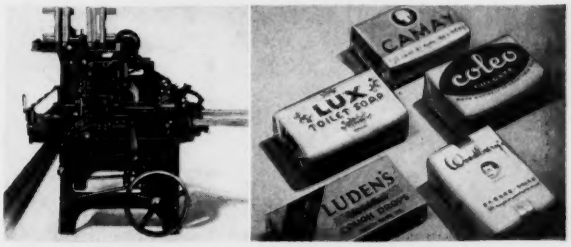
Model 22-B—Wraps candy in individual pieces. Handles hard candy or soft center pieces in many sizes, odd and fancy shapes. Does combination type wrapping (for example inner wrapper of foil, outer wrapper of transparent cellulose).



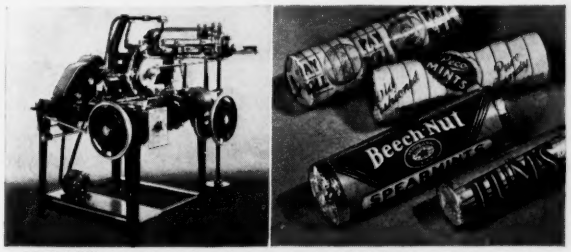
Model HY-3—Wraps cut or lump sugar, or similar rectangular articles. Handles either paper wrappers, gluing end folds—or waxed paper heat-sealing seams. Machine may be built for various sizes. Speed 100 per minute.



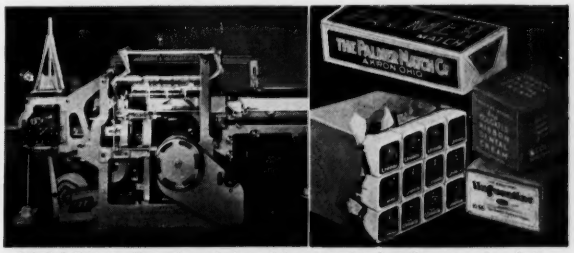
Model N-4—Adjustable to various sizes. Machine gums and seals end folds . . . also gums longitudinal seam if desired. May be equipped to insert cardboard or circular.



Model S—Speed 150 per minute. Handles many styles of wrapping . . . uses any material . . . adjustable for different sizes. Inserts cardboard or circular, if desired.



Model EE—Assembles, feeds, and wraps a stack of fruit drops, cough drops, mints, etc., or any small cylindrical piece. Uses foil or waxed paper cut from roll. Package is then banded with printed label, sealed and discharged ready for packing.



Model F-9—Bundles packages in lots of from 2 to 24, depending upon size of the packages. Eliminates the expense of packing in costly cardboard boxes. The machine registers printed panels accurately. Also attaches printed end seals.

SHOWN here are some of our more widely used wrapping machines—part of a complete line of 78 types, covering virtually every wrapping requirement in modern industry. Some of our machines were built especially to meet the needs of particular manufacturers. Others are adaptable to a large variety of products. Practically all of our models are now adjustable for a wide range of sizes, and handle every type of modern wrapping material.

Our complete facilities and wide experience can be of value to you . . . in improving the appearance and salability of your product, and in bringing about lower costs.

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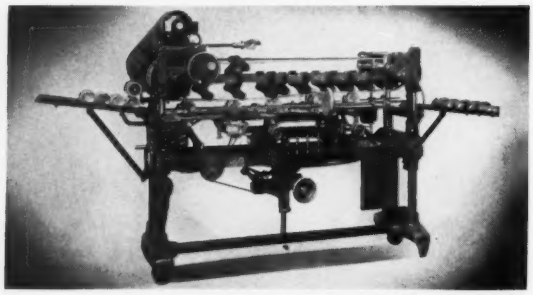
2. Whether the label is rectangular or odd shaped.
3. The type of bottle, jar or package to be labeled.
4. Range.
5. Ease of changing from one size to another.
6. Cost of change parts and their simplicity.
7. Control of the adhesive application.
8. The cleanliness of the labeling job.
9. The accuracy of the labeling job.
10. Accessibility of the machine.
11. Productive capacity.

Round Can Labelers

The labeling of round cans, such as are used by the food, paint, soap, lubricant and other industries, presents a problem which is different from the general labeling as described above. The label as used on this package is of the "wrap around" type, the extremities lapping over each other. Consequently, for this purpose, round can labelers have been designed, both of the semi- or hand-fed and fully automatic types.

There is a distinct difference in these two types in that the former covers the label with adhesive over its entire surface, the latter applying adhesive partly to the can body and only to the glue lap of the label. Aside from this, there is also a great difference in the production capacities of the two types.

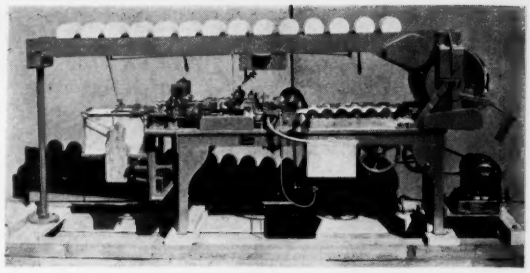
In the semi-automatic machine, the can as well as the label are introduced manually and the finished article ejected by hand as well. Production, as on all hand-fed machines, again depends on the operator, so that from 4000 to 6000 cans can be labeled per eight-hour day, the variance depending on the size of the package, the facility of bringing the work to, and taking the work away from, the machine and, as stated, the dexterity of the operator.



7. Heavy duty round can labeling machine. Photo courtesy Standard-Knapp Corp.

These machines have fairly large ranges and require no change parts, the range being self-contained. They are well adapted to small runs, frequent changes and for packages requiring the label to be adhered over the entire body surface.

In the fully automatic round can labelers, the cans roll down a track and have "spots" of adhesive applied. These "spots," when the can passes over the label hopper, pick up the label which is then wrapped around the can, the label having a glue strip applied to the lap.



8. Tight-wrap labeling machine for round cans. The label holds on the caps. Photo courtesy J. L. Ferguson Co.

This glue strip forms the closing joint. Pressure is applied to insure adhesion between the can and the label.

As regards production, these machines, on an average, handle between 250 and 500 cans per minute, 600 to 800 is not infrequent and, in some isolated cases, over 1000 per minute are handled. However, on these high productions, facilities must be arranged to handle and move the labeled articles away from the machines at the same speeds. Their ranges are quite broad, and, as in the case of the semi-automatic machine, self-contained.

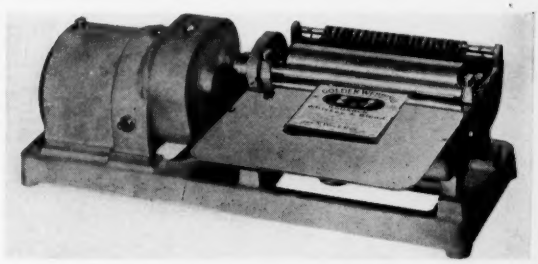
Round can labelers, of course, can also handle round bottles with certain limitations and paint cans with "ears" for handles. In the latter case, the labels must be die-cut to allow for these projections.

In preparing labels for these machines, to get the best results the grain of the paper should run parallel to the longest dimension and, when using either varnished or lacquered labels, care should be taken that the glue lap is free of coating so as to facilitate the gluing at the seam.

Label Gummers

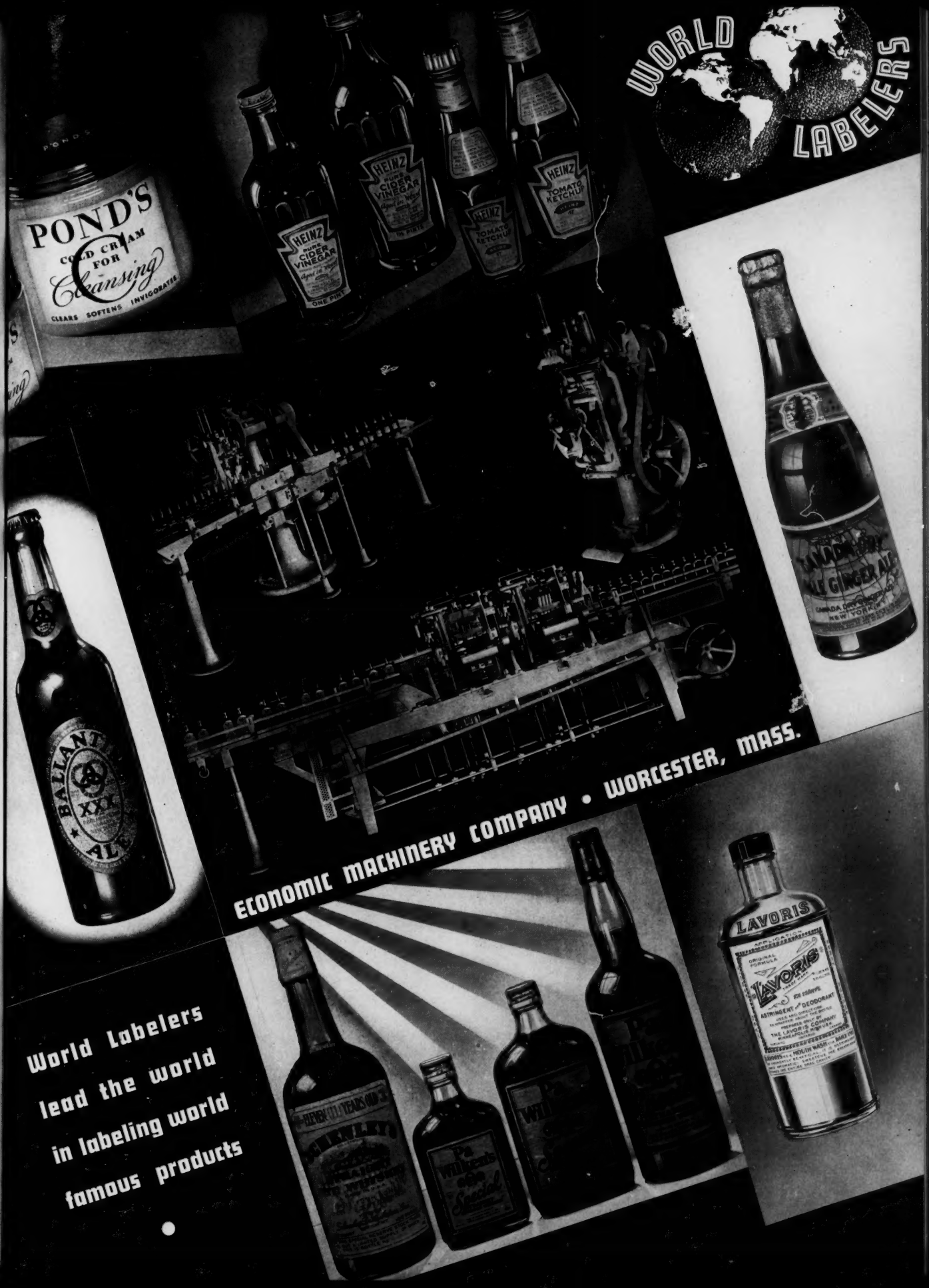
Label gummers are not truly labeling machines, for they are not used to actually apply the label to its point of final contact with the package. Their function is, rather, to apply a gummed coating to an uncoated label, or to moisten a pre-gummed label and thus to facilitate hand application.

A number of types and variations are available, but all have the general characteristic of a motor drive rotating a cylinder partially immersed in, or in contact with, glue or gum or water. Labels are fed, either one at a time or from a reservoir, over this gumming roll and thus prepared for application. Machines can be made to apply gum over all the label or to any particular portions of the label as desired.



9. Label gummer with electric drive mechanism. Photo courtesy U. S. Bottlers Machinery Co.

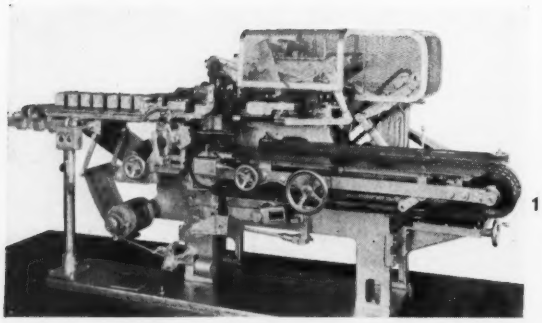
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PURE CIDER VINEGAR
ONE PINT
HEINZ
TOMATO KETCHUP
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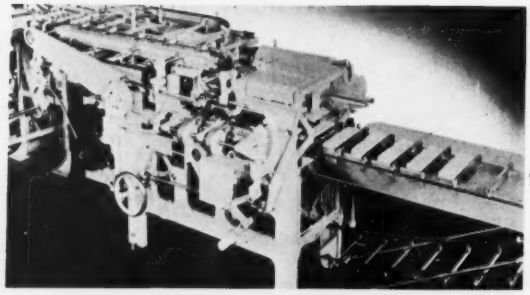
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AUTOMATIC (LOOSE) WRAPPING EQUIPMENT

by OTTO HALBACH, JR.*



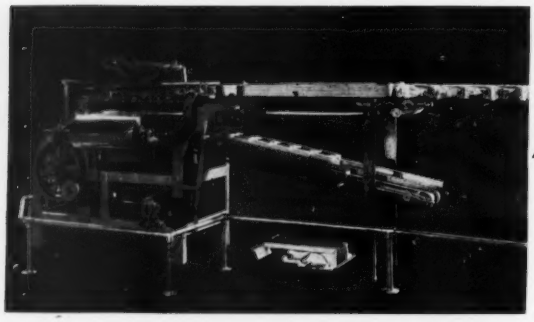
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2



3



4

1. Yeast cake labeler. Speed 60 per min. Courtesy Battle Creek Wrapping Machine Co. **2.** Waxed paper labeler for individual wafers. Courtesy Battle Creek Wrapping Machine Co. **3.** Automatic cake wrapper with band labeling attachment. Courtesy Johnson Automatic Sealer Co., Ltd. **4.** Heat sealing rectangular package wrapper with photo electric registration unit. Courtesy Hayssen Manufacturing Co.

Wrapping machines, in their infancy, were confined to the wrapping of uniformly shaped containers such as cartons and boxes and were heavy, clumsy affairs, operating at low speeds. Since then, new ones have been developed to wrap almost any type of package imaginable. Yet, in the advancement of the wrapping industry, the older style wrapping machines have not been discarded entirely, but have been improved and modernized. Changes have been made to adapt them to the use of new types of wrapping materials, such as transparent cellulose, glassine and foil, as well as paper and waxed paper. The electric eye method of registration has made possible the use of all types of wrapping materials in printed roll form, although the machines will also handle cut-to-size sheets fed from a stack. The range of the machines has been extended, making it possible to wrap as many as a dozen or more sizes of packages on one machine. The speed of the machines has also been increased and the use of handwheels has simplified the problem of quick adjustability.

The wrapping of packages can be divided into two broad groups: loose wrapping and tight or wet wrapping, so called because the inside surface of the wrapper is covered with glue. Wet wrapping has taken its place in the wrapping of cartoned goods such as soap powder, salt, sugar, cereals and other food packages, because of its ability to prevent insect infestation and leakage. Nevertheless, because of its practicability and adaptability, loose wrapping has come into wide general use.

At present, more and more producers are realizing that the sales value of a package is considerably enhanced when that package is securely wrapped and sealed. In addition, this package must retain its attractiveness after the outer wrapper has been removed. The loose overwrap is the answer. Especially is this true in the confectionery trade where, in most cases, a fancy box is overwrapped in some kind of transparent material. Moisture-proof cellulose can be used where a fairly airtight, moisture-proof package is required.

When private brands for different customers are to be handled, plain cartons may be wrapped in printed materials or in unprinted wrappers and labels, for identification and appearance. The loose wrappers can be held in place on the cartons by means of thin glue lines applied automatically, which will prevent the wrappers' slipping from the cartons after they have been opened.

The loose wrap lends itself especially well to the placing of a circular or premium between the box or carton and the outer wrapper and where a revenue or tax stamp is necessary, as in the case of cigarettes. Provisions have

* Package Machinery Co.

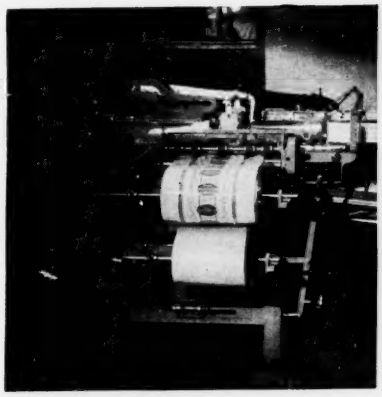
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PERFECT
WRAPPING

★ ★ ★ ★ ★ ★



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AUTOMATIC PACKAGE WRAPPING MACHINE

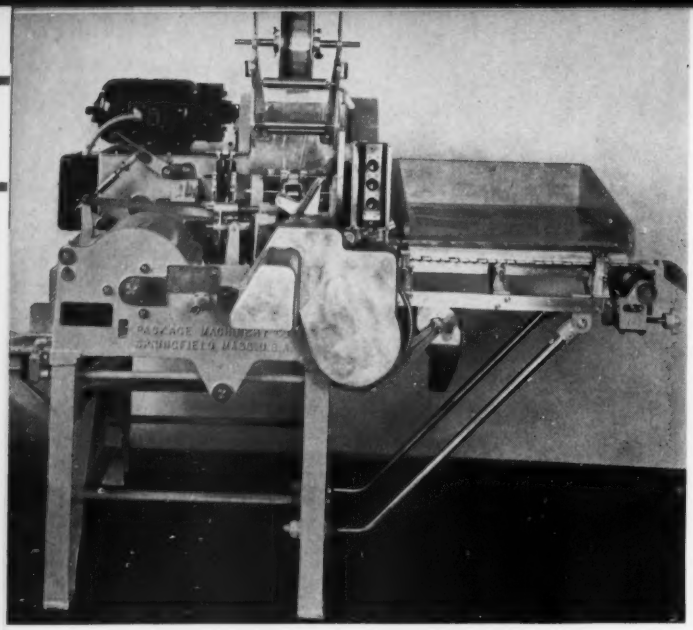
SPEED, ECONOMY, GOOD APPEARANCE—you get all three when you wrap your packages on the New HAYSSEN. No fuss—no worry—the HAYSSEN wraps your packages with uncanny precision and seals them perfectly. You get not only perfect protection for your products through the medium of a tightly sealed wrapper but also increased styling through the added attractive appearance. You can't go wrong when you depend upon the HAYSSEN. Hayssen Automatic Wrapping Machines have been manufactured for thirty years. One of the several models manufactured can be successfully used to solve your wrapping problem. Write us today—tell us what you need—the sizes of your packages—the kind of wrapping paper, etc.—you will not be obligated in any way.

1 Low Capital Investment ★
2 Adjustable to various sizes ★
3 Machine Simplicity ★
4 Low upkeep cost ★
5 Fully Automatic ★
6 Attractive snug wrapping ★
7 Electric eye registration ★

HAYSSEN

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5. Automatic candy pop wrapping machine. Photo courtesy Package Machinery Co.

been made on many automatic wrapping machines to make the feeding of the circular from a magazine a part of the wrapping operation.

The greatest advantage of the loose wrap is, of course, that it can come in contact with the article to be wrapped without the need of an inner protective covering. Individual pieces of candy are cut and sized on the same machine and then wrapped in transparent cellulose or waxed paper with the ends folded or twisted. Irregular pieces of chocolate candy are wrapped in foil. Many different sizes and shapes of candy bars are wrapped in cellulose, paper or waxed paper and the addition of the electric eye makes possible the use of printed wrappers in roll form. Various kinds of pops are now being wrapped in waxed paper or heat-sealing cellulose on automatic machines. Bread and cakes, too, and bars of soap lend themselves equally well to the loose overwrap, as do, also, towels, paper napkins, cigars, yeast and countless other articles.

It is only recently that the use of automatic wrapping has been considered in the frozen foods industry and here the loose wrap is necessary. A wrapper which can be heat-sealed will withstand the low temperature conditions necessary in packaging and preserving frozen foods and waxed paper or heat-sealing cellulose is used. Both of these materials are, of course, obtainable in printed roll form and the electric eye can be used to register the printed panels properly.

Other uses have also been found for carton and box wrapping machines. Automatic bundling of cartoned merchandise is a comparatively new development and is very popular with the manufacturer who is confronted with the problem of distributing his goods economically. The cost of paper wrappers is considerably less than that of pasteboard containers and the lower weight of paper as compared with the pasteboard will materially reduce shipping costs, especially where the shipping distance is fairly substantial.

Another new adaptation of box wrapping machines is the manufacture of bags of transparent cellulose material. The bags are formed on wooden mandrels and are stripped from the mandrels at the discharge end of the machine, ready to be filled. Here again, the electric eye makes possible the use of printed material in roll form. Provision can also be made to place a sticker on the inner or outer surface of the bag for identification purposes. The simple procedure of feeding the mandrel through the machine twice, without removing the first bag, will result in a double bag, of double strength. The bags produced in this way have the advantage of not being folded and stored away for long periods of time prior to use, a procedure which is claimed to weaken ready-made bags considerably. Extra parts can also be provided to permit the use of the machines as box or carton wrappers, when the bag production is not sufficient to keep the machine running at full capacity.

The advancement of machine wrapping has also resulted in the development of many new machines of a more specialized nature than those described above. Included in this group are machines for wrapping cakes of soap, bars and pieces of candy, individual cubes of sugar, cigars, packages of cigarettes, yeast cakes, fruit drops and mints and many similar articles and packages. All of the popular types of wrapping materials can be handled by these machines and, here again, electric eye registration has been important. The wrapping operation on these machines has also been improved to decrease the amount of wrapping material needed. Especially is this true in the confectionery trade, in the wrapping of candy pops, where the use of a tight twist, heat-sealed, has decreased by about twenty per cent the amount of wrapping material needed.

While box or rectangular object wrapping is an important part of the wrapping machine art, it is only one part. For candy, machines are available to take the candy in plastic form, form it, cut it and wrap it, either with folds or with twisted ends and speeds can be attained up to 500 or 600 a minute. With twisted wrapping, the machine can be arranged so that the twisted ears can be colored and colored inserts can be put inside the wrapper. Old standbys, such as kisses or caramels, can be dressed up now in a highly attractive and salable form and, as a result, the merchandising of candy is taking on a new lease of life.

Recently the wrapping of pound and sliced pound cake in transparent cellulose has become quite prevalent in the East, and, as a new means of merchandising cake, it is becoming popular. To do this economically the cake bakeries have had to set up their production for automatic wrapping as the cost of large batteries of girls for wrapping the cake by hand proved too expensive. An automatic machine which accomplishes this purpose is equipped with a band-labeling attachment and cardboard inserting mechanism.

A newer development along the lines of registration is the use of a miniature printing press, using quick-drying aniline ink and geared to the paper feed of the machine. The press prints material as it is being fed from the roll

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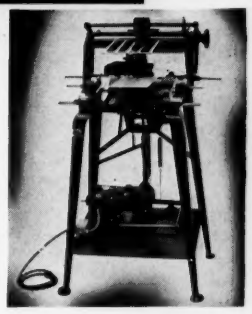
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YOU WILL WANT TO EXAMINE the hundreds of packages on view that represent packaging problems solved by these machines. You will want to gather details on speeds, savings, installations.. and you will want to speak with us on the solution to your own problems.

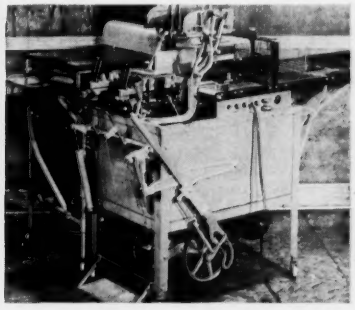
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a low-priced machine that produces far better CELLOPHANE bags at LARGE SAVINGS in their actual cost! Makes bags from rolls . . . the cheapest and best form of using CELLOPHANE or other papers. Bags made from rolls are fresher and Simplex bags are stronger because machine does not crease them. This practically eliminates *splitting* and *tearing* of bags in filling or on counters which is usually caused by creases that break down strength of paper. SAME MACHINE MAKES FLAT ENVELOPES OR SQUARE BAGS . . . SPOT-PRINTED OR UNPRINTED . . . DUPLEX OR SINGLE WALL.



Bag-Making Machine



3 Machines in 1

3 MACHINES IN 1

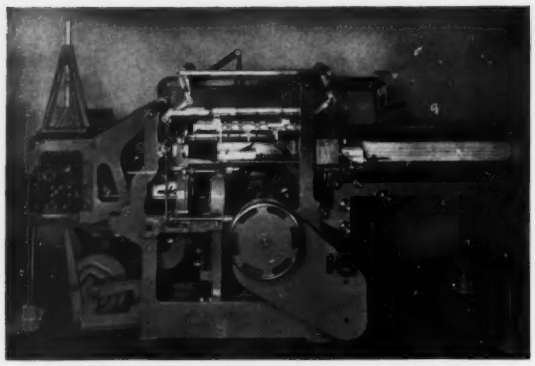
The new Miller Combination Wrapping, Bundling and Sheeting Machine! This unit CELLOPHANE wraps individual packages . . . Bundles units of 3, 6 or 12 pieces in kraft paper . . . or cuts, glues sheets on one, two or three sides, delivers pre-glued sheets to operators for faster handwrapping of extra large or irregular shaped items. Quick adjustments make this the most flexible machine on the market.

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6. Automatic bundling machine. Photo courtesy of the Package Machinery Co.

into the machine. Registration is automatically taken care of, without the use of an electric eye.

The use of strong wrapping materials, such as cellulose, has resulted in the development of easy-opening devices such as tabs, tapes and machine-made nicks to facilitate the opening of the packages. Such devices are now being used extensively on such small packaged goods as cigarettes, fruit drops, packages of chewing gum and samples of cough drops.

The wrapping of chewing gum is receiving a great deal of attention at present because of the development of high-speed automatic wrapping machines. A machine is now available to wrap small individual sticks of gum at a speed in excess of 600 a minute. The machine will apply an inner wrapper fed from a roll and a printed band fed in sheet form. A thin strip of adhesive will glue the outer wrapper to the inner and prevent its slipping off the end of the stick. Regular sizes of individual sticks are being wrapped with an inner roll fed wrapper and an outer printed label, at speeds up to 400 a minute.

If the individual stick wrapper and a package assembler and wrapper are used together, the complete wrapping job will be a continuous and automatic one, from the feeding in of the individual wrapped sticks to the discharge of the finished packages.

In considering machine wrapping, three elements always enter the picture—speed, adjustability, and price—and the three have an intimate relation to one another. The more specialized the machine, the higher is possible production, and the more difficult it is to change the size. At one extreme are the high-speed chewing-gum machines just mentioned; at the other extreme are the carton wrapping machines, based on the principle of bread wrappers, where a size change can be made in less than five minutes over a wide range, but whose speed is limited to slower operations.

Automatic wrapping machinery is constantly being developed and improved to include all kinds of articles and containers. The producer or manufacturer who has an article to be wrapped is almost sure to find an automatic wrapping machine which will meet his needs and whose price is within his means. Sometimes a potential machine user, whose production of any one line is not large enough to warrant the purchase of a machine for that line alone, will overlook the fact that one automatic machine often will handle all of his sizes, the total output being enough to keep a machine running at full or at least economic capacity.

SEMI-AUTOMATIC WRAPPING EQUIPMENT

by R. H. FREEMAN*

Semi-automatic wrapping machines require a smaller investment and permit extreme flexibility with regard to size and nature of packages. This makes them valuable to both the small and large scale manufacturer. It gives the former all the wrapping equipment he needs and allows the latter an economical means of wrapping his smaller runs, producing novel packages, or testing new packages on the market at little expense.

Versatility of the semi-automatic wrapping machine extends beyond mere "adjustment range." It permits the wrapping of irregular, loose or stacked items or packages, because of close contact of the operator with the folding operation. The odd package can be guided, by hand, just enough to make allowance for its peculiarities. A few examples in this category are packages composed of several loose pieces, such as four bars of soap and a wash cloth, the popular roll type cookie package, paper napkins, cellophane or kraft wrapped bundles of small packages, etc. Soft cakes and other fragile merchandise can also be wrapped without injury.

The semi-automatic machine will wrap with a variety of materials, either heat- or glue-sealed, including heat-sealing cellophane, waxed papers, waxed foil and the non-heat-sealing materials, such as plain transparent sheets, kraft and other ungummed or unwaxed papers. If a manufacturer of pharmaceuticals should desire to wrap his packages first individually in heat-sealed cellophane, then bundle them by dozens in kraft paper, the semi-automatic would perform both jobs, laying glue on the kraft paper to seal it.

Instant adjustability makes the semi-automatic wrapping machine suitable for very short runs. On a moment's notice, it can be changed over from the smallest to the largest package within its range. Adjustments have been so simplified that a girl operator, unassisted, can make a complete size change, without tools. Hand fastenings do the trick.

* Miller Wrapping and Sealing Machine Co.

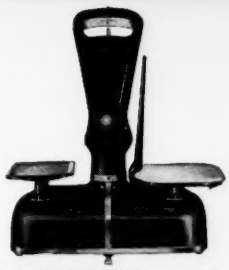
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CANADIAN TOLEDO SCALE CO. LIMITED, TORONTO, ONT. SALES AND SERVICE IN 181 CITIES, U.S.A. AND CANADA





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ONLY THE SPEEDWEIGH BRINGS YOU ALL THESE IMPORTANT FEATURES:

- **Toledo Accuracy** —precision-built for dependable performance
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Scale, equipped with electric cut-off, controls feeding, weighing, and hopper-discharge for dry materials. Maximum accuracy achieved, as there is no mechanical contact between cut-off and weighing mechanism. . . Equipment shown in photo used in packing elbow macaroni. Also available with solenoid valves for precision weighing and automatic filling of liquids. Automatic Weighers are built to a variety of specifications to exactly meet individual requirements.

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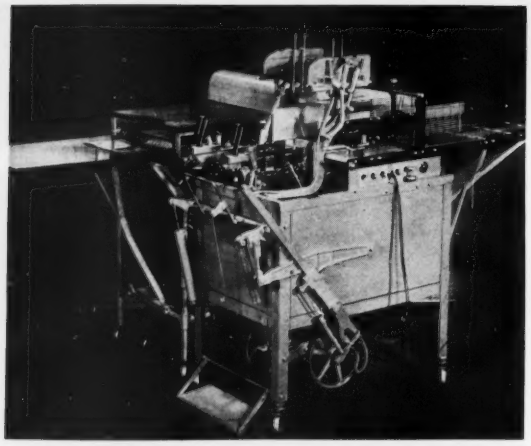


There are upwards of 45,000 variations of basic Toledo models available for the full range of modern industrial weighing requirements . . . up to 30 tons and more.

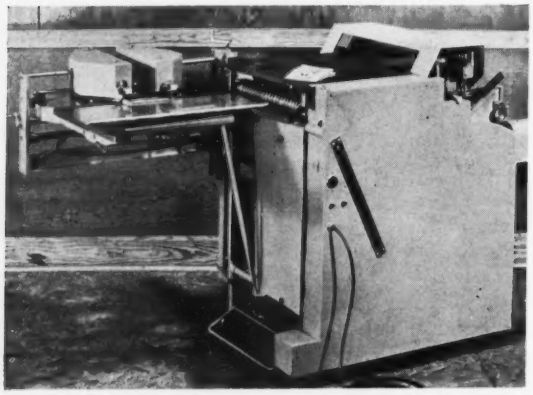
With the dial-type Toledos it is also possible to furnish weight-printing equipment (Toledo Printweigh) that provides either a ticket or a strip record of all weighings.

CALL the Toledo Scale office in your city, or write Toledo Scale Company, Toledo, Ohio, for information on equipment for your particular weighing requirements.

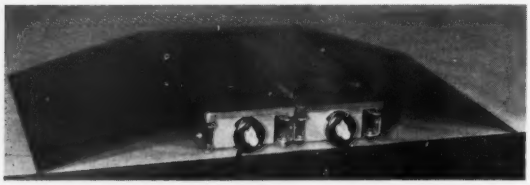
TOLEDO maintains the only completely nation-wide scale-service organization in both United States and Canada, with factory-trained mechanics stationed in 181 cities.



1. Semi-automatic heat sealing cellophane wrapper. Photo courtesy Miller Wrapping and Sealing Machine Co.



2. Machine for cellophane wrapping and heat sealing thin or flat packages. Photo courtesy Miller Wrapping and Sealing Machine Co.



3. Heat sealing plate with ramps to facilitate package movement. Photo courtesy Oliver Machinery Co.

Speed of semi-automatic machines, while naturally less than those of the full automatic, is adequately high to exceed, by many times, that of hand wrapping and wrapping by means of simple fixtures and jigs. In some cases, particularly where frequent adjustment is required, or where great economies in wrapping materials are possible, the semi-automatic shows even greater savings than the automatic. Each machine has its place and they seldom overlap, so determination of the equipment indicated for any particular job is not difficult.

Packages produced on semi-automatic machines are uniformly neat and well sealed, whether with heat or glue. When heat-sealed, the hot plates are kept under thermostatic control, so that there is no injury to either the wrapper or packages. Packages containing heat perishable goods, such as chocolate, butter, icings, frozen foods and the like, can, if necessary, be passed quickly through the heat seal region, so that a seal takes place, but the heat cannot penetrate far enough to be injurious. When glue is used for sealing purposes, the amount of flow and area of application can also be positively controlled, so that results are unerringly the same and the machine user can have confidence in the uniformity of his product, both in appearance and protection afforded by the wrapper.

Bottle wrapping is another achievement of the semi-automatic wrapping machine. Using many of the principles of the package-wrapping machine to retain the valuable feature of adjustment for many sizes, this equipment also provides a clever means of neatly tapering the cellulose wrap from shoulder to cap of bottles. Here too the hand work is very limited. The cellulose sheet is simply placed around the bottle, the bottle and sheet set in the wrapping machine and a lever tripped.

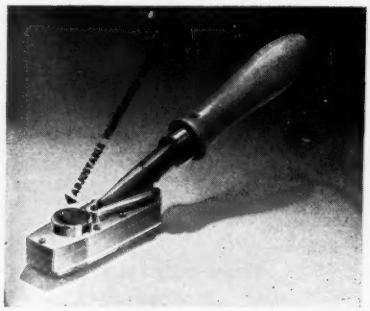
Ordinarily, the semi-automatic machine folds and seals the wrapper over the bottom and two ends of the package, in the manner that an ordinary biscuit carton is usually wrapped. However, where a very shallow package is to be wrapped, where the ends do not offer sufficient depth for a satisfactory end seal, the end folds can be tucked under the ends of the package, or "underlapped." This feature is useful on flat packages, such as cake slices, sheets of writing paper and even extension edge candy boxes, which are recessed at the sides and ends so that a conventional seal is impractical.

The semi-automatic wrapping machine can also be furnished with a number of money-saving attachments, such as a coding device for perforating letters or numbers in the wrapper, a labeling device for delivering a band along with the wrapper, and a counting unit.

To sum up, the cost, easy adjustment range and extreme versatility of the semi-automatic wrapping machine recommend it wherever low cost wrapping is the aim of the producer.

Hand Wrapping Fixtures

A number of simple and inexpensive tools have been developed, in recent years, to aid hand operators in wrapping heat-sealing materials. These include hot plates of various types, upon which a package may be placed momentarily to achieve a seal. Where line seals or spot seals are desired, special heating irons, equipped with thermostatic controls and similar in appearance to soldering irons, are sometimes utilized.



4. Package sealing iron with automatic temperature control. Photo courtesy Wells Manufacturing Co.

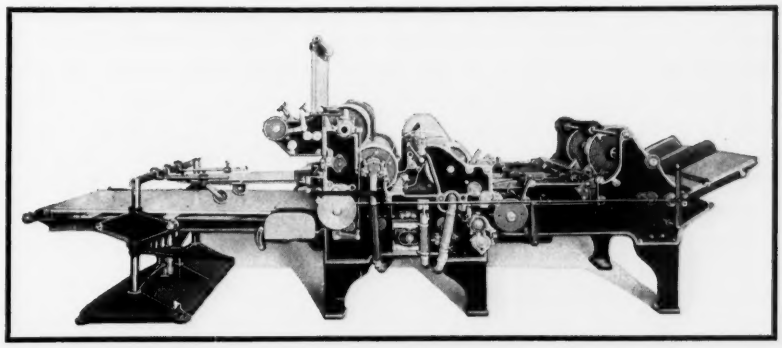
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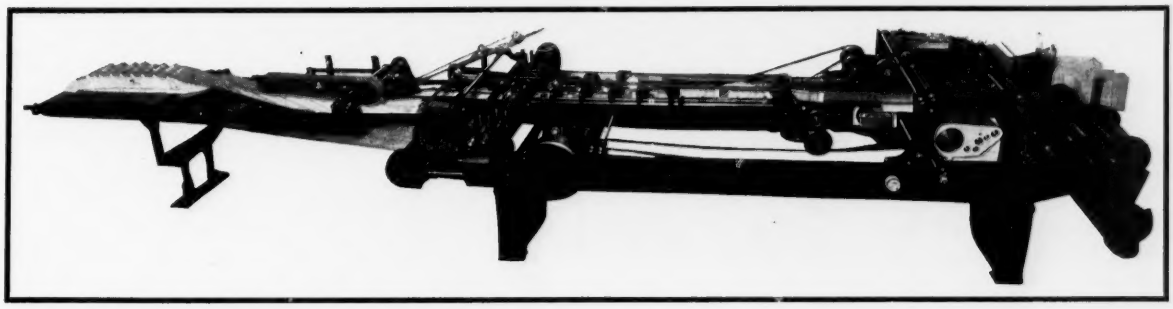
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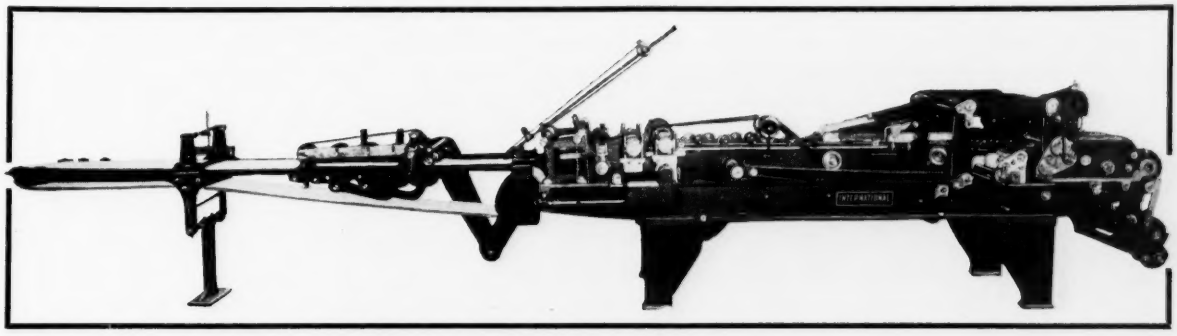




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TIGHT-WRAPPING EQUIPMENT

by CARL E. SCHAEFFER*

Tight-wrapped packages are standard with many manufacturers and packers of food and grocery products. First adopted a number of years ago by some of the cereal manufacturers, where its greatest advantage was in keeping the weevil from getting into the contents, the tight-wrapped package has been adopted for use with many other products, such as flour, soap powders, salt, coffee, cereals, etc.

With the tight-wrapped package the plain unprinted cartons are filled and sealed in the regular way, there being a number of different makes of semi-automatic and full automatic carton filling and sealing machines on the market. After the carton is filled and sealed it is fed into the tight-wrapping machine which automatically feeds the paper label as the carton enters the wrapping machine, glues the label all over on the blank side with a thin coating of adhesive and wraps it tightly around the filled carton, making a perfectly tight-sealed, non-sifting, weevil-proof, and attractive package.

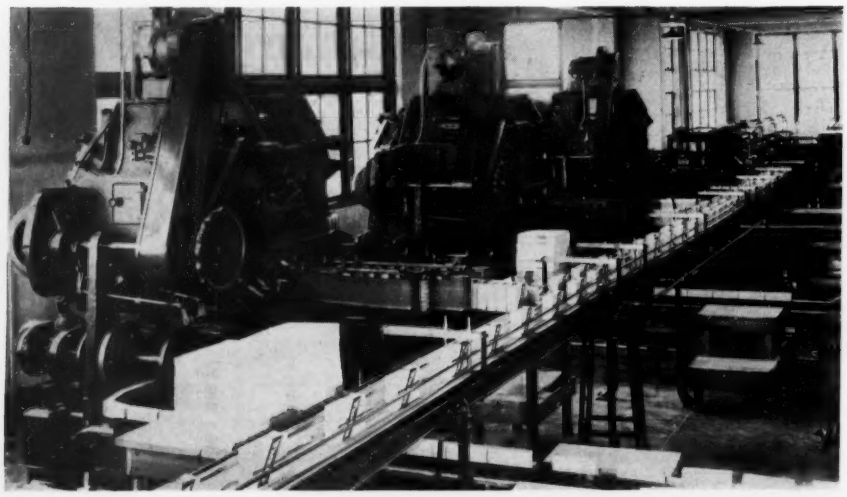
Various types of cartons with inside bags or liners can be used with the tight-wrapped package, as well as different types of opening devices. In the salt industry the tight-wrapped package is now being used by many of the leaders, and one of the most satisfactory salt packages is a carton made of asphalt-lined board which is tight-wrapped on the outside. For coffee, wax or parchment-paper liners are generally used on the inside of the carton and the cartons are tight-wrapped on the outside. For flour, the regular chipboard carton is used and some of the packers have these made with a blue lining on the inside which gives a whiter appearance to the flour. Various combinations of cartons, liners, and labels can be used to insure the product getting to the consumer in the best possible condition of presentation.

Another advantage of the tight-wrapped package is for the packer or manufacturer who packs private-label brands for different customers. If he uses the tight-wrapped package he can use the same carton and merely have different labels for the different brands. This means a saving as it is not necessary to carry a number of different printed cartons on hand. With the tight-wrapped package various types of labels giving different styles of end folds can be used to suit the conditions. Some labels are die-cut so that each end-flap of the label is glued down separately. Others are rectangular, making a gusset fold on the end. For the usual tight-wrapped package, the labels are printed on a 40- or 50-lb. machine-finished paper.

Recently the varnished label has been adopted by a number of packers and manufacturers using the tight-wrapped package, and the package tight-wrapped with the varnished label makes an ideal container for many food and grocery products. The varnished surface makes the package attractive, the colors show up to advantage, and the varnished surface will not accumulate dirt or dust as quickly. Also, the package is more moisture-proof as the varnish gives the extra coating on the outside. Another variation of the tight-wrapped package is the one wrapped with a metal-foil wrap. In this case the labels are made of metal foil laminated on paper so that the outside of the label is the printed metal foil and the inside is paper which can be glued uniformly to the carton. Laboratory tests have shown that this style of package is one of the best for protection against moisture, grease, light and other hazards.

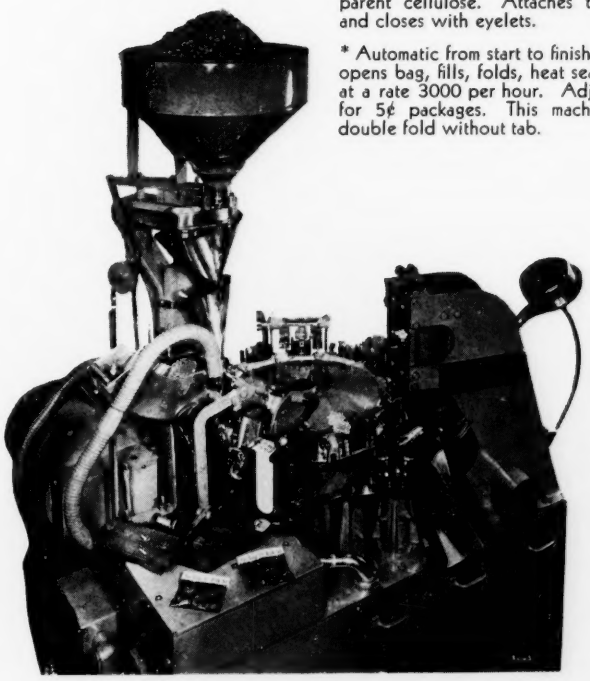
Another recent development combines the advantages of tight-wrapping and wax-wrapping at considerably

* Stokes & Smith Co.



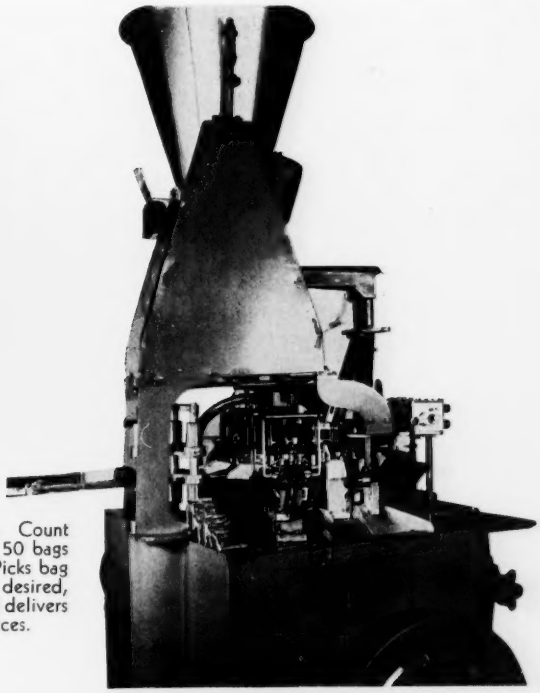
1. Battery of tight-wrapping machines delivering wrapped cartons to a collecting conveyor. Photo courtesy of the Pneumatic Scale Corp., Ltd.

Frank Packaging Machines AUTOMATICALLY Deliver EXTRA PRODUCTION, EXTRA PROFITS!



Frank Supreme Full Automatic* Bag Filler for transparent cellulose. Attaches tab to bag, heat seals and closes with eyelets.

* Automatic from start to finish. Feeds tabs and bags, opens bag, fills, folds, heat seals, eyelets and delivers at a rate 3000 per hour. Adjustable weights. Ideal for 5¢ packages. This machine also available for double fold without tab.



Frank Full Automatic Bag Opener and Filler. Count job, adjustable from 1 to 20 pieces per bag 50 bags per minute either Cellophane or Glassine. Picks bag from bag box, opens and forms, fills to count desired, folds, straightens, closes one or two staples and delivers to container. Suitable for ordinary candy pieces.

We are builders of a large and varied line of fully automatic and semi-automatic bag opening and bag filling machines. We also manufacture the inexpensive and efficient Magic Manual Bag Opener and Filler, ideal for candies, nuts and similar products.

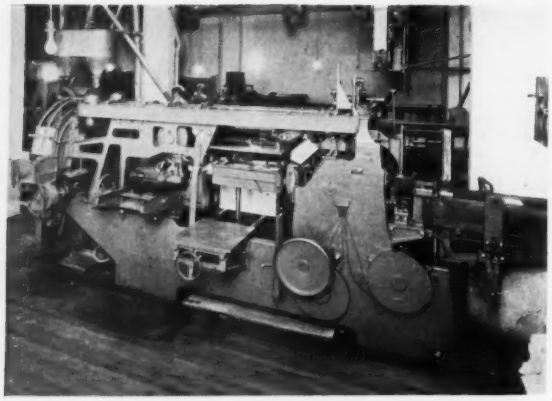
Because of the breadth of our line, most requirements, including many of the most unusual—can be filled from standardized machines and hence at the lowest cost. Specialized adaptation can be worked out to meet particular problems. Consult with our engineers, without obligation. Write, wire or phone—

JULIUS FRANK MACHINE WORKS

1302 LARRABEE STREET **CHICAGO, ILLINOIS**

Manufacturers of All Types of Bag Filling and Sealing Equipment

XUM



2. Automatic tight-wrapping unit. Photo courtesy of the Stokes & Smith Co.

lower cost. This is accomplished by printing and waxing only one side of the sheet of paper, and gluing the underside to all four sides and top and bottom of the plain carton. This development has been made possible through the perfection of electric-eye methods of registration which permit roll-feeding of the printed and waxed stock. Roll-feed and electric-eye registration can also be applied to regular unwaxed tight wrappers, and this is an advantage because under certain conditions roll-printing is less expensive than printing in sheets.

Various kinds of adhesives can be used to suit the requirements. For the ordinary paper tight-wrapped packages a cold vegetable dextrine adhesive soluble in water is used. For varnished and foil wraps there are several kinds of moisture-proof adhesives and also Latex adhesives on the market. Some of these can be used cold and others require heat or a special solvent for running in the gluing unit which is integral with all types of tight-wrapping machines.

The machines for tight-wrapping packages are built in different styles and types to suit the conditions. There is a semi-automatic machine which is hand-fed and adjustable for different sizes and has a production of 10 to 15 tight-wrapped packages per minute. Then there is the fully automatic machine usually built for one size package to be wrapped and which has a production of 60 to 70 tight-wrapped packages per minute.

CARTONING EQUIPMENT

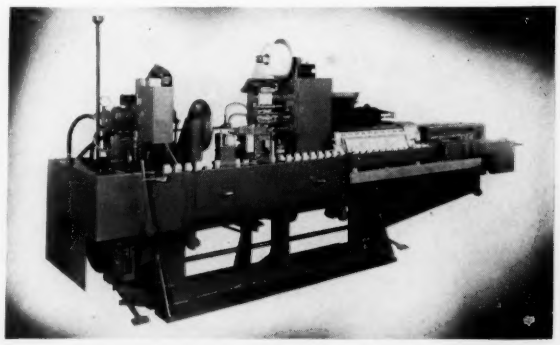
by CHARLES L. BARR*

The term "cartoning machinery," as used in this article, refers to machines designed to open or erect cartons, to place therein one or more units of the product itself, or a bottle, jar, tube or other package unit or units, plus supplementary printed matter, if desired, and to then close the carton into the form in which it will appear when placed on the dealer's shelf. Machines for packaging bulk materials or free-flowing or semi-free-flowing products are treated elsewhere in this section.

Whether or not a prospective purchaser of cartoning machines or a producer of cartoned products is warranted in planning for the use of cartoning machinery, depends upon a number of factors. First, of course, there is the matter of the number of packages he is required to produce daily or weekly. Secondly, there is the nature of his package. Some cartoned products can be packaged quite economically by hand. Others, because of their more involved nature, are prohibitively expensive to produce by hand. The best procedure involves the submission of packages to carton machinery suppliers who can, after a study of all the factors involved, recommend either an existing machine in their lines or advise as to the possibility of modifying one of these machines to meet peculiar conditions.

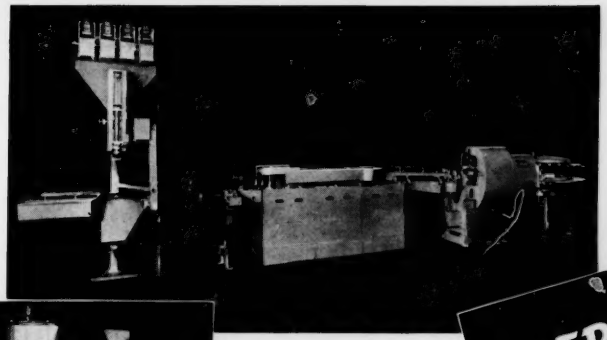
In general, there are two types of cartons that are handled by automatic cartoning machinery. Most commonly used is the tucked carton equipped with top and bottom flaps which are tucked into position by the fingers of the cartoning machine. The other type is what is known as the glue end carton. This is used in cases where tamper-proof seal is desired or where the weight of the product would open the bottom tucks of the tucked type. In some instances, cartons are used with a combination of glued flaps at the bottom and tucks at the top.

The variety of cartoned products is tremendously broad. Packages of razor blades stand, perhaps, at the small end of the size scale. From this point they range upwards to the large cartons used for macaroni or for cleansing tissues.



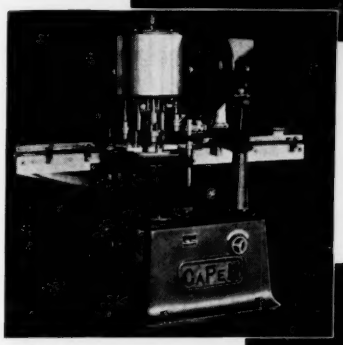
1. This unit wraps the product in a wax inner liner, loads the carton and creases all tabs. Courtesy F. B. Redington Co.

* Vice-President, F. B. Redington Co.

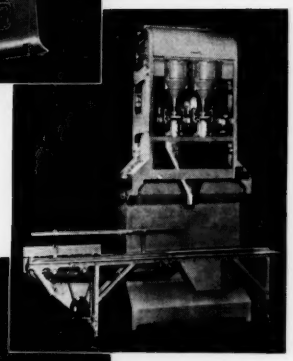


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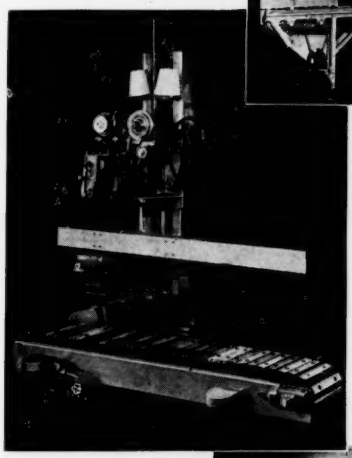
SERVING INDUSTRY 1939·



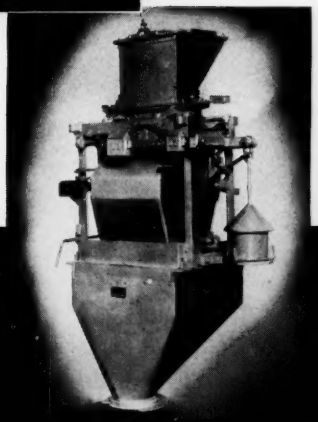
2



3



4



5

Consolidated equipment today offers ample evidence of forward looking machine design. Those who chart their course by the clear indications of future trends have been quick to recognize striking advances in every type of packaging equipment we are offering. CaPeM, HOEPNER and SEALTITE machines, by safeguarding profit margins, are serving American industry as never before. Following is a partial list of packaging operations falling directly within the scope of Consolidated equipment.

AUTOMATIC BAG SEALERS (Paper) *"SEALTITE"*

1 An expanding interest in the paper bag is encouraged by Sealtite equipment. It is designed to impart added appeal to this type of package and at the same time brings some striking economies to the packaging operation. Literature or specialized information upon request. Write today.

AUTOMATIC CAPPING . . . . CAPEM

2 CaPeM automatic cappers are offered in wide variety and designed to handle practically any type of modern cap or closure. Screw caps, broken thread caps, shallow or deep-skirted caps of metal or plastic and of practically any size are sorted, fed and applied to any type of container at any required speed.

AUTOMATIC WEIGHING . . . . HOEPNER

3-5 Hoepner scales are the result of over 30 years development. Sugar, salt and all types of heavy chemicals, as well as grains and feeds of every description, are weighted accurately and economically on a wide variety of completely automatic equipment.

AUTOMATIC BAG CLOSING (Textile)

4 Three improved types of Hoepner sewing machines form a nucleus for some outstanding equipment for closing cotton, burlap, jute and heavy multiwall paper bags. The range of handling on textile bags extends from small cotton pockets to the largest sizes of bags used.

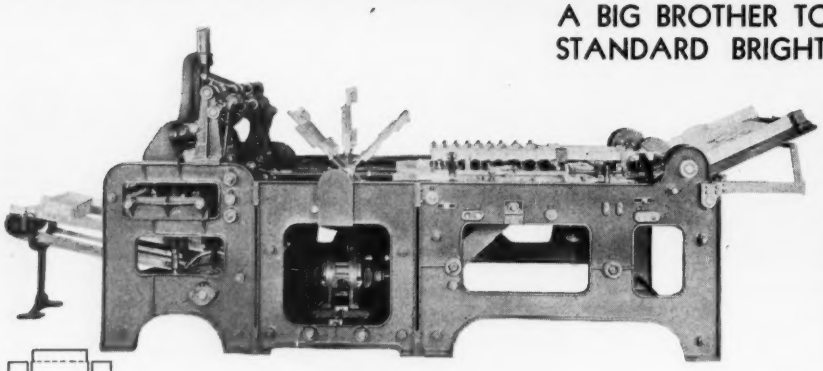
CONSOLIDATED PACKAGING MACHINERY CORP.

1400 West Ave. BUFFALO, N. Y.

XUM

THE NEW UNIVERSAL BRIGHTWOOD BOX MACHINE...

A BIG BROTHER TO THE STANDARD BRIGHTWOOD BOX MACHINE



A high grade machine for high grade boxes, such as shoe boxes, candy, hosiery and other good quality boxes. It forms turned over end boxes from blanks with double side walls, either creased or scored. Also produces single wall boxes the same as the Standard Brightwood, except those with hinge covers. The operation is as follows:

Flat blanks are stacked in the slanting magazine at the extreme right, and fed by combing wheel roll into conveyor where the score is broken and glue applied by rotary method (either full or spot gluing), then conveyed into spider transfer where glue is tempered before blank enters the plunger section. Here it is folded and formed under 5,000-pound pressure, and ready for use immediately after being discharged at the extreme left.

A 2 h. p. motor is installed underneath the center section of the machine, which is equipped with magnetic brake and Variable Speed control.

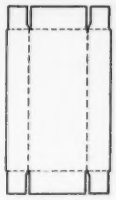


Double Wall Blank

Range in Sizes: Minimum length 6"
" " width 3"
" " depth ¾"
Minimum length of blank 9"

Maximum length 20"
" width 11¾"
" depth 4½"
Maximum length of blank 32"
" " end flaps 6½"
" turned over end 3¼"

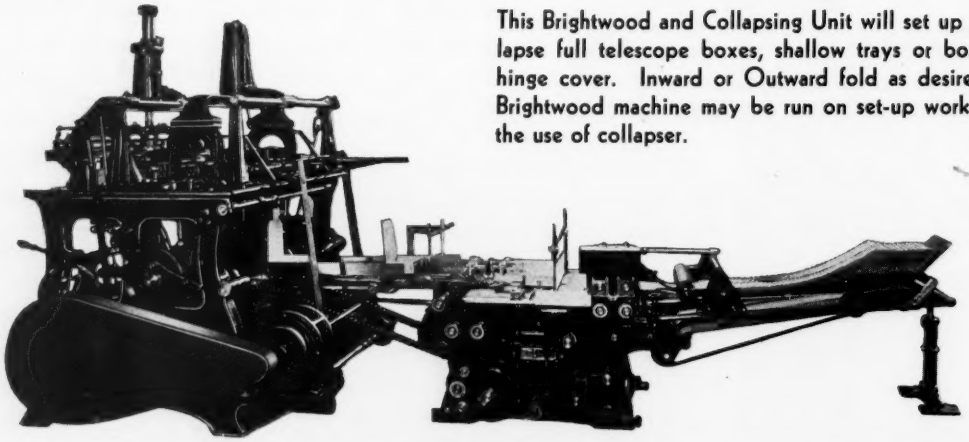
Floor space 15' x 5'
Running speed 20 to 60 per minute
H.P.-2
Shipping weight (crated) 5136 lbs.



Single Wall Blank

Several of these machines are in daily operation. Let us tell you more about its economy and dependable performance

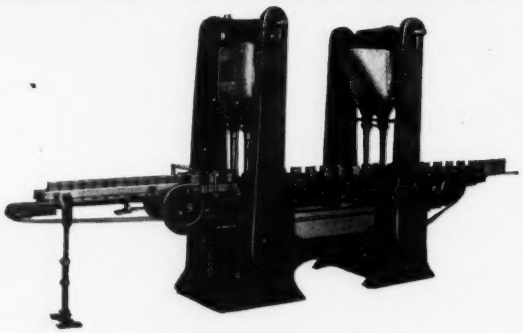
BRIGHTWOOD BOX MACHINE AND COLLAPSING UNIT



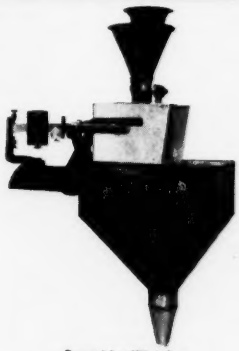
This Brightwood and Collapsing Unit will set up and collapse full telescope boxes, shallow trays or boxes with hinge cover. Inward or Outward fold as desired. The Brightwood machine may be run on set-up work without the use of collapser.



M G Bond Packer-Weigher, Semi-Automatic. Powdered Material Gross Weight.



M N Bond Filler-Weigher. Gross Weight. Fully Automatic. Powdered Material. Production 60 to 120 per minute.

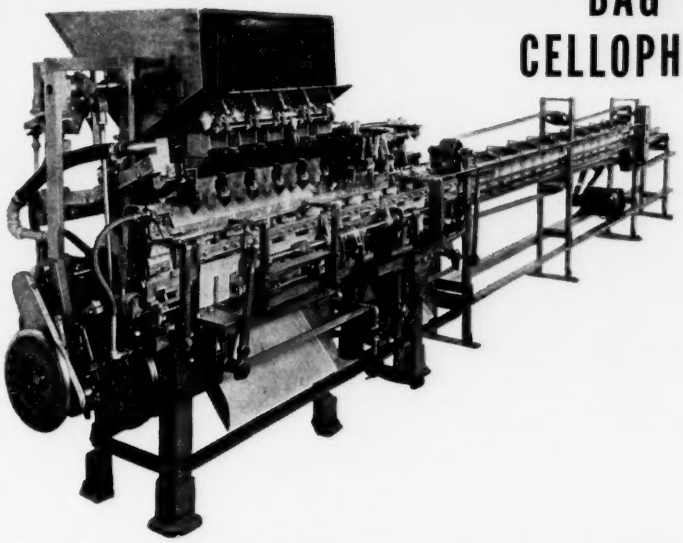


Scott Net Weigher Gravity Feed

U. S. AUTOMATIC BOX MACHINERY CO. INC.

ROSLINDALE (BOSTON) MASS.

XUM



BAG PACKAGING MACHINE CELLOPHANE OR PAPER BAGS FULLY AUTOMATIC

OPERATION: Feeds and opens bags from magazine; Fills the bulk in four successive steps; Finishes each package with correct weight by a dribble stream over an electrically controlled scale. Top of bag then folded and glued, and passed into conveyor drier.

PRODUCTION SPEED: 40 per minute of 1 lb. capacity. FLOOR SPACE: 14′ x 3′ overall.

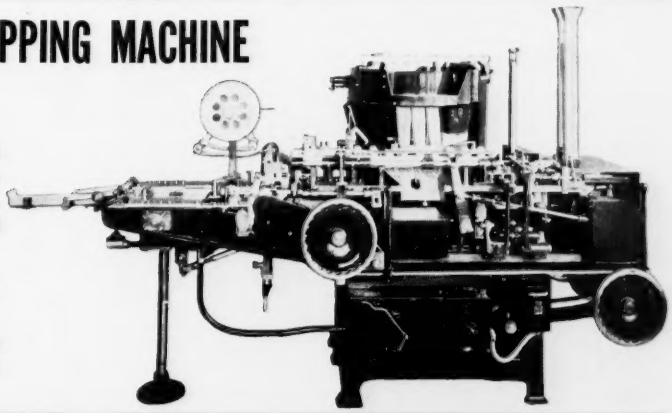
COMMODITIES: Short cut macaroni, Coffee, Peas, Beans, Rice, Peanuts, Small Hard Candies, etc.

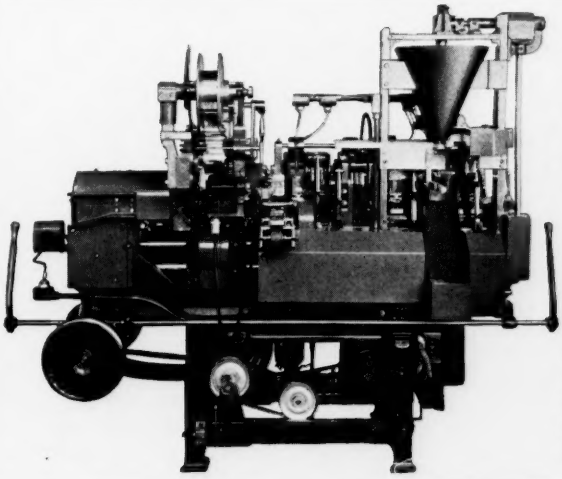
CARTONING, FILLING AND WRAPPING MACHINE FULLY AUTOMATIC

OPERATION: Feeds and opens cartons from magazine and tucks bottom, makes liner from a roll and inserts into carton, fills package, folds top of liner before tucking top of carton, then passes into wrapping unit. Cellophane or any heat sealing paper may be used.

PRODUCTION SPEED: 70 per minute. FLOOR SPACE: 8′ x 3′ overall.

COMMODITIES: Any small hard product such as cough drops, and/or any free flowing granular commodity such as Jelly powders.





FOIL ENVELOPE PACKAGING MACHINE

Forms envelope from printed roll of foil or paper. One piece bottom, triple fold and heat sealed sides. Fills correct amount of product and closes top same as sides. An air tight and attractive package.

PRODUCTION SPEED: 70 per minute.

FLOOR SPACE: 6′ x 4′ overall.

OTHER MACHINES BELONGING TO THIS GROUP

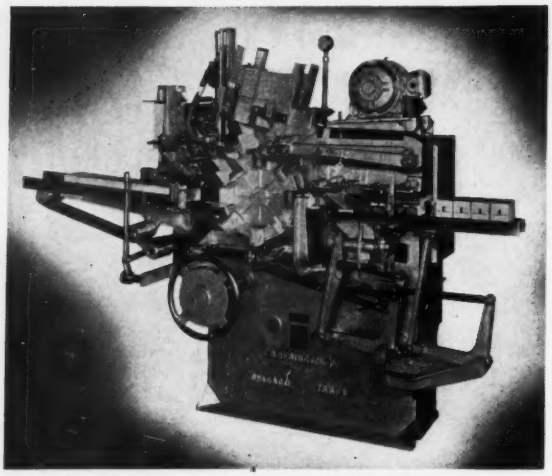
Razor blade wrapping machines, single or double edge blades.
Counting and Filling of Chiclets and tablets.
Constant Motion Cartoner.
Envelope Filling & Inserting.
Counting & Filling into Hinge Boxes, Circular Folding & Inserting.
Irregular wrapping of Flexible Commodities.
Pencil Packaging in one dozen lots.

U. S. AUTOMATIC BOX MACHINERY CO. INC.

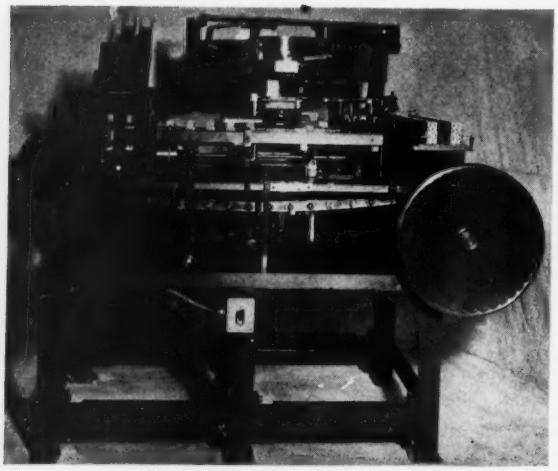
Owning and Operating, NATIONAL PACKAGING MACHINERY CO.
CARTONING MACHINERY CORPORATION
18 Arboretum Road, ROSLINDALE, BOSTON, MASS.

Branch Offices: NEW YORK CLEVELAND, OHIO CHICAGO, ILL.

XUM



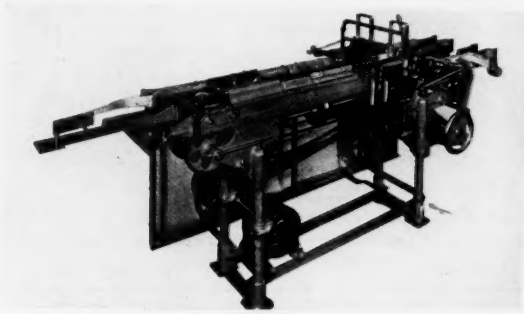
2. Machine places oleomargarine prints, plus insert material, into cartons at speeds up to 100 per minute. Photo courtesy of the F. B. Redington Co.



3. Automatic cartoning machine for small candies. Courtesy Cartoning Machinery Corp.

The efficient speeds at which cartoning machines now operate depend to a great extent on the nature of the product to be handled and the size of the package. Several well-known five-cent packages of candy coated chewing gum, containing twelve tablets, are automatically produced on machines that operate at speeds of 100 to 160 packages per minute. Safety razor blades are automatically counted out and cartoned at speeds as high as 240 packages per minute. Bars of soap and similar products are automatically cartoned at speeds of 150 or sometimes more per minute. Tubes of tooth paste and shaving cream, small bottles and the like, are handled at 150 per minute regularly.

During the past year there have been two rather distinct trends in the design of cartoning machines. First, there has been a tendency to combine such operations as cartoning and cellophane wrapping, eliminating the necessity for transferring cartoned packages, by hand or conveyor, to cellophane wrapping equipment. Certain well-known packages of candy coated chewing gum are produced on this type of machine. Second, there has been a further trend toward improvement and refinement of the continuous loading or constant motion type of cartoning machinery.



4. Carton folding and closing machine taking filled cartons off conveyor line. Courtesy Peters Machinery Co.

COLLAPSIBLE TUBE FILLING

by F. J. STOKES Jr.*

The selection of tube filling equipment depends on three important factors: first, the consistency of the material; second, the range of tube sizes; third, daily production.

Liquids and semi-liquids that are self leveling and will flow by gravity are the least difficult to handle as the material will run into the tube from the top, will fill uniformly and will be free of air bubbles. Furthermore, the material can be easily fed to the hopper of the machine and will flow down through the hopper, by gravity into the filling mechanism. Tooth pastes, shaving creams and similar materials that will not flow by gravity, must be filled by placing the filling nozzle down into the bottom of the tube and filling from the bottom up to prevent air pockets. In most cases, the filling pump will pull the material down into the hopper, but if the material is "short" and breaks apart, an impeller type agitator must be used to force it down through the hopper. Creams, ointments and similar pastes that will not flow by gravity can sometimes be made to flow by warming them. The machine, in this case, is equipped with a jacketed hopper and an agitator to keep the material at a uniform temperature and it is also equipped

* F. J. Stokes Machine Co.



In Every MAJOR *Package-Using Field* STANDARD-KNAPP EQUIPMENT *is Standard Equipment*

The reason? It's easy enough to find. *Overwhelming superiority!* . . . in construction, efficiency, durability, low maintenance costs.

Consult STANDARD-KNAPP engineers about your casing problems . . . whether your package is a bottle, can, carton, wrap or tube. *They'll* show you the way to faster production . . . lowered costs.

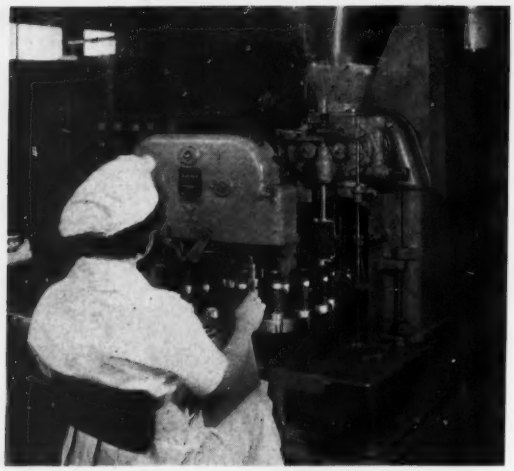
STANDARD-KNAPP CORPORATION

MANUFACTURERS OF CASE SEALING, CASE PACKAGING, AND CAN LABELING MACHINES

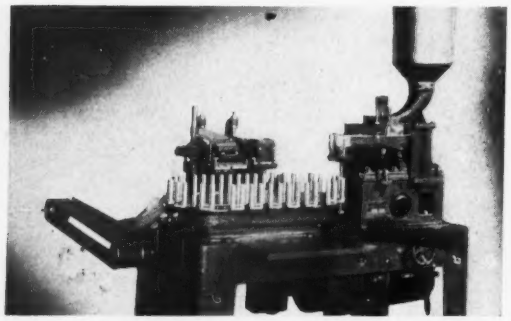
43-27 32nd PL., LONG ISLAND CITY, N. Y. — 208 W. Washington Street, CHICAGO — 1001 Society for Sav'l Bldg., CLEVELAND — 909 Western Ave., SEATTLE

420 S. San Pedro St., LOS ANGELES — 300 Seventh Street, SAN FRANCISCO — 315 South West Pine Street, PORTLAND, OREGON — Windsor House, Victoria St., LONDON, ENGLAND

XUM



1. Double nozzle automatic filler. Speed 60 tubes per minute. Photo courtesy Arthur Colton Co.



2. Single nozzle machine filling prepared coffee into one-dose tubes. Capacity 35 per minute. Courtesy Arthur Colton Co.

with heated filling parts. Before adopting this method, it is important to determine whether the material shrinks on cooling, as any shrinkage will draw the walls of the tube in and give it an empty appearance.

The majority of the machines on the market will handle tubes up to $1\frac{1}{2}$ in. in diameter by 6 in. long and many of them will handle tubes up to $1\frac{1}{2}$ in. in diameter by 7 in. long. Hand-operated equipment will handle somewhat larger tubes, but the semi-automatic and automatic machines must be modified to handle tubes over 7 in. in length. Most of the machines on the market can be easily adjusted to handle any size tube within their capacity, but the prospective customer should carefully consider the ease of adjustment and the cost of change parts.

The production requirements will, of course, determine whether hand-operated, semi-automatic or full automatic machines should be used. All three types are available and range in capacity from 100 or less tubes per hour, up to 7000 an hour.

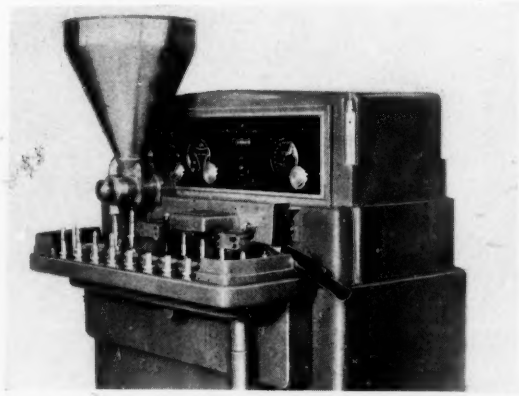
Machines

A complete outfit for filling, closing and clipping collapsible tubes may be purchased for as little as $275 and will put up from 10 to 20 tubes per minute, using three operators. Two types of hand-operated filling machines are available, one for liquids and semi-liquids and the other for pastes. Both are easily adjustable and both fill the tubes as accurately and as cleanly as do power-driven, automatic equipment. The filled tubes are then transferred to a small hand-operated folding machine which applies a double fold or which can be furnished to apply the quadruple fold. A third operator indents the folds such as on clipless closures, or clamps on a clip, by means of a foot-operated press. Certain models can be equipped with electrically heated jaws for applying the hermetic seal described below.

A production of about 30 filled and sealed tubes per minute can be had by using a general purpose filling machine and then transferring the tubes to a second machine which folds the ends and seals them. Two operators are needed. In the case of liquids, it is possible to put a filling attachment directly onto the folding and sealing machine, in which case one operator can fill, fold and seal up to 30 tubes per minute. These machines can be equipped with variable speed drive, so that the speed of the machine can be adjusted for individual jobs. The folding and sealing machine can be equipped with heated jaws for making an hermetic closure.

For the manufacturer who has a varied line of products, a completely automatic tube filling, closing and sealing machine is available which will handle up to 50 tubes per minute with one operator. This machine will handle both pastes and liquids, since the tubes are raised up over the filling nozzle and are filled from the bottom up. The machine can be set to make a plain double fold, a quadruple clipless fold or the hermetic seal. The operator simply places the tubes into the tube cup and registers them so that the trade mark or printed matter on the tube will be in proper relation to the fold. Ejection is automatic onto a conveyor. In case the operator misses a tube, the machine continues but the filling mechanism does not discharge. Minor adjustments in quantity of discharge can be made by the operator while the machine is running.

A full automatic machine is available for filling up to



3. Filler equipped to provide new weld type closure. Courtesy The Karl Kiefer Machine Co.

XUM

Bar-Nun
BAG FEEDER AND WEIGHER
No. 15

Automatically feeds and opens bags . . . weighs, fills and check-weighs

AUTOMATIC weighers so accurate and efficient that you can depend upon "no greater variation in weight than 1/64 th ounce plus or minus in filling up to 1/2 pound packages: and no greater variation than 1/32 nd ounce plus or minus with packages up to 2 pounds."

But that's not all! When the BAR-NUN Weigher is combined with the bag feeder and opener the following operations are automatically performed.

1. Removes one unopened bag at a time from the manually loaded magazine.
2. Opens it.
3. Holds it in place under the weigher spout until the accurate discharge has been made.
4. "Check-weighs" it for accuracy.
5. Releases the filled bag.
6. Ejects it to packing table or automatic bag closing machine.

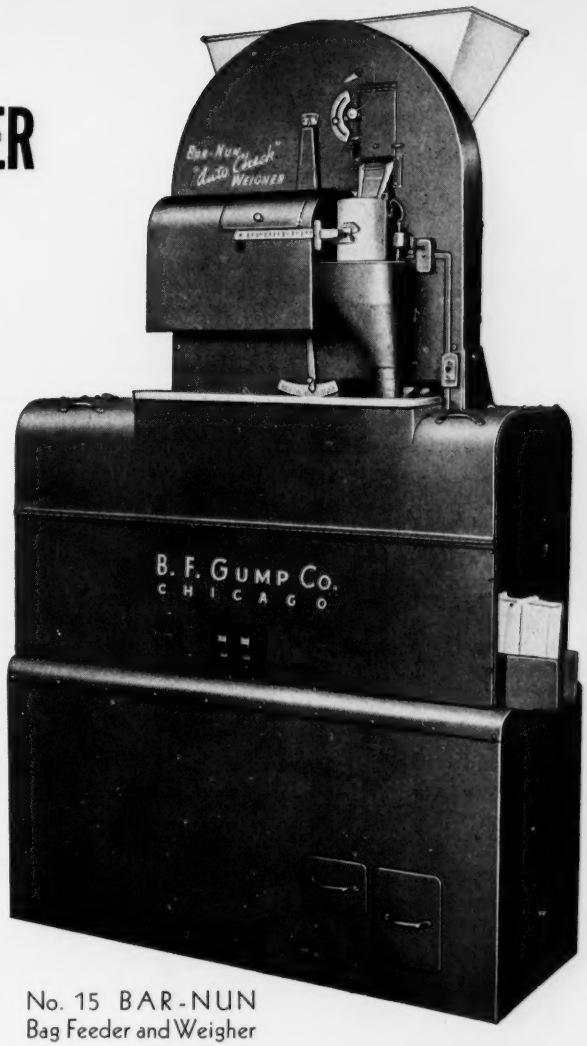
Either "V" or square bottom bags, as well as bags with or without tin tie can be handled with equal efficiency. The automatic weigher cannot discharge unless a bag is in place. Ejecting mechanism will not perform until a full discharge has been made into the opened bag. A unique circular power feed permits the handling of pulverized or granular materials. Each discharge is automatically check-weighed. A positive beam setting poise eliminates plus or minus poise settings. Speed up to 30 one-pound bags per minute is attained. The Bar-Nun Bag Feeder and Weigher is a complete, self contained unit, ready for immediate operation. Requires less than 1/2 horsepower to operate. Weigher also available as separate unit.

OTHER GUMP UNITS

ALLISON BAG CLOSERS automatically pack, triple-fold and seal bags with a strip of gummed paper tape. Allison packed bags are securely sealed against leakage losses and are tamper proof; stack easier, and display better, because of their greater solidity.

EDTBAUER DUPLEX NET WEIGHERS for discharging predetermined weights of material accurately and continuously into containers. Built in two types . . . gravity or power feed, and in five sizes with capacities from 1 ounce to 75 pounds.

Get complete information and prices on these sturdy, dependable Gump machines. Write today. No obligation.



No. 15 BAR-NUN
Bag Feeder and Weigher

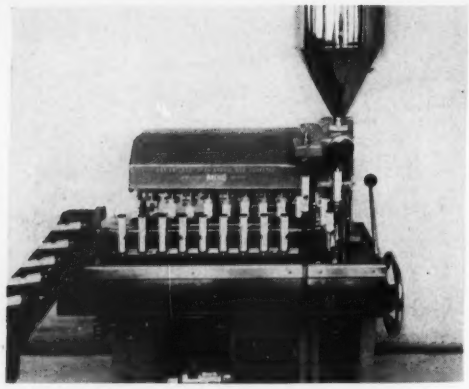
BAR-NUN "Auto-Check" WEIGHERS

Extreme accuracy without sacrificing speed is the outstanding feature of BAR-NUN "Auto-Check" Weighers. Designed according to a new principle, automatically weighs, check-weighs and fills stubborn powdered or granular materials into small 1/2 oz. to 1/2 lb. containers. New automatic bag opening and holding device further increases speed. Get all the details on this new time and money - saving equipment. Net and Gross Weigher Models. WRITE TODAY!



B. F. Gump Co.

ENGINEERS AND MANUFACTURERS SINCE 1872 ★ 445-450 SO. CLINTON STREET, CHICAGO, ILL.



4. Tube filling machine with automatic cap tightening, positively controlled filling and numbering device. Photo courtesy Arenco Machine Co.

120 tubes per minute. This machine automatically removes the tubes from the cellular shipping carton, registers the printed matter by means of a photo-electric cell, automatically fills, closes and discharges. As a rule, these machines are built for one particular job and are not very adaptable for general purpose work.

Bottom Closure

The simplest type of closure is a plain double fold. This is neat and attractive in appearance and is sufficiently strong for materials, such as rubber cement and glues, that automatically harden and prevent further seepage in the event they leak through the fold. It is also satisfactory for thin pastes and similar materials that are easily extruded and do not strain the fold when forced out of the top of the tube. This double fold can be strengthened considerably by indenting or corrugating the metal, such as is done in the usual clipless closure.

The so-called clipless closure is probably the most popular type, although hand-operated and semi-automatic machines are not usually equipped to produce it. This closure consists of a quadruple fold, reinforced by corrugations. The ten layers of metal that result are as strong as a clip and considerably more resistant to seepage and leaks. As the fold is not covered with a clip, it is the same color as the tube itself or can be given a separate color to enhance its appearance. Control numbers or dating codes can be stamped on the fold by placing inserts into the jaws that form the corrugations.

When the tube is folded, the walls come together and give the tube a wedge-like appearance. The volume of the tube is reduced considerably and the material is forced up toward the fold. For this reason, tubes must not be filled more than about $^3/_4$ or $^7/_8$ full, as otherwise the material will push out through the fold while it is being made and result in a dirty tube.

One manufacturer of tube filling machines has patented machines equipped to support the two walls during closing and thus to prevent them from flattening out. The so-called "flat filled" tube which is obtained enables the same amount of material to be put in a shorter tube.

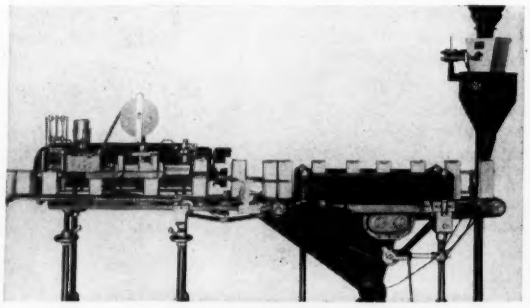
The ordinary double and even quadruple fold is reasonably tight, but many materials quickly seep through and either corrode the tube or give it a very unattractive appearance. Many methods have been devised to seal the tube absolutely tight, with varying degrees of success. One method is the hermetically cemented closure. The tubes are coated, on the end where the fold is made by the tube manufacturer, with a special transparent cement. The tubes are filled and folded in the usual manner on regular equipment, but the crimping jaws are electrically heated and when the fold is corrugated by them, the heat fuses the cement and produces a tight seal.

Another tube sealing method, available on a patented machine of one manufacturer, uses a welding process to seal the tube walls together. This, it is claimed, permits a saving of up to three-quarters of an inch of material on each tube.

BAG PACKAGING

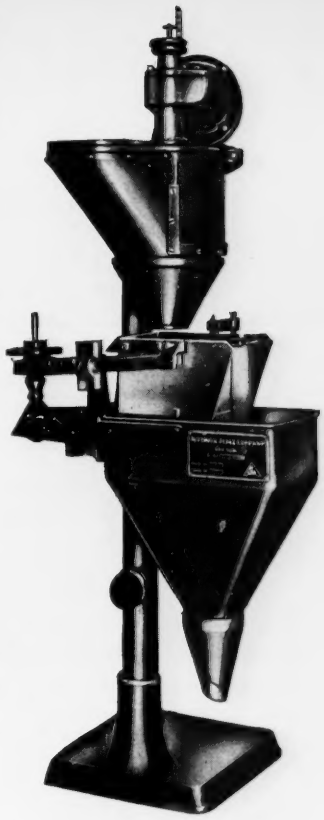
Automatic equipment for the efficient closing of stiff containers such as has been available for many years, formerly made it almost imperative for the large producer of packaged goods to seek some form of stiff container, either a can or carton. Although the cost of these containers was considerably higher than that of paper bags, the saving in production cost frequently more than equalized the excess cost of the package itself. Thus, in most cases, the bag remained the unit for only the small producer who utilized all hand operations or combined hand or semi-mechanized bag opening and sealing operations with semi-mechanized or automatic filling operations.

Today the automatic machinery available in this field



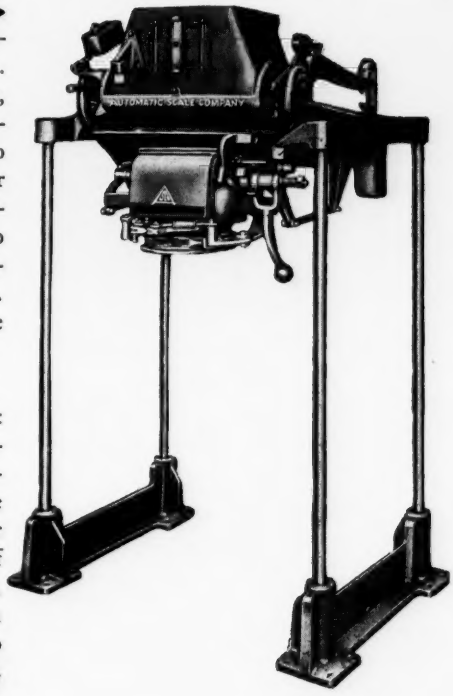
1. Allison bag closer for automatically packing, folding (with triple fold) and sealing with tape, either lined or single paper bags. Courtesy B. F. Gump Co.

Specialists in Weighing Equipment
AUTOMATIC SCALE COMPANY Presents
These Easily Operated, Efficient Machines

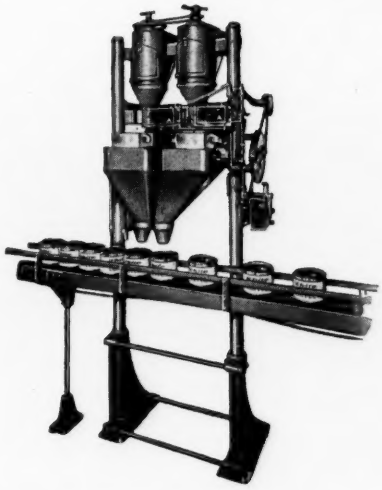


MODEL 4U weighs tea, coffee (any grind), and powders at speeds 25 to 30 per minute. . . . . Accuracy that does not permit leaks. . . . . Range, 2 oz. to 1 1/2 lbs. . . . . Weighing fully automatic. . . . . No levers or treadles.

Right: The new 515 Sacking Scale for free flowing material—fertilizer, chemicals, sugar, grain . . . . . Handles all size bags, burlap or paper, from 34" circumference to 60" circumference. . . . . Weighs from 50 lbs. to 200 lbs. . . . . Speed, 6 to 9 per minute with one operator. . . . Weighing is fully automatic—no gates to close—nothing to watch. . . . . Operator handles only empty sacks. . . . . Clamp the bag—the scale does the rest.



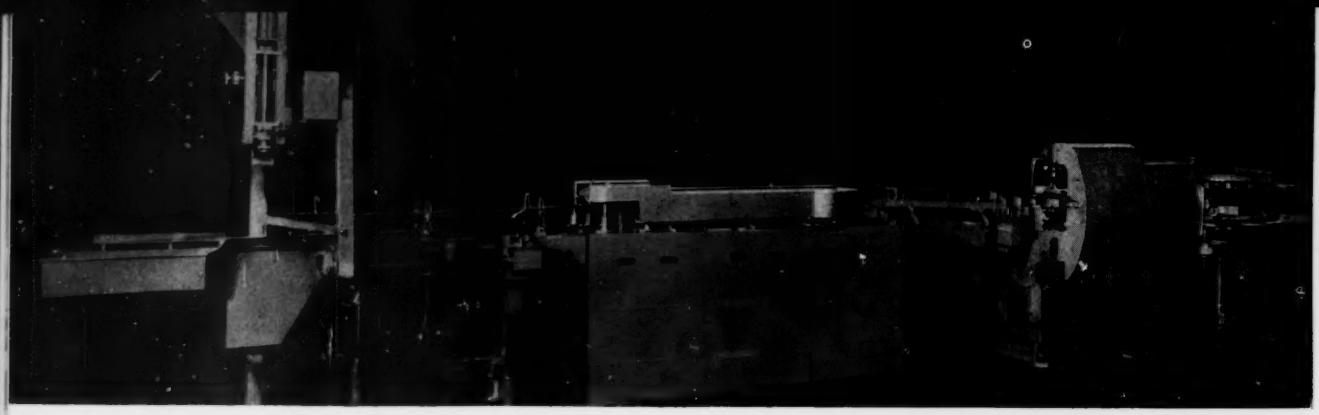
Below: NPM2 Essential features: Fully Automatic . . . Will not discharge if no cans are present . . . Extremely accurate . . . Made in single units, with speed of 25 to 27 per minute; in two units, with speed of 50 to 55 per minute; in three units, with speed of 70 to 75 per minute; in four units, with speed of 90 to 100 per minute.



By their extraordinary efficiency and unerring accuracy, these machines have proved time and again their ability to effect substantial savings, to step up production speeds, and provide lasting satisfaction. Machines pictured show but three of over forty models—gross weight, net weight, volumetric fillers—handling from 1/4 oz. to 750 lbs. If you have a weighing problem, let us help you solve it.

AUTOMATIC SCALE COMPANY
INCORPORATED

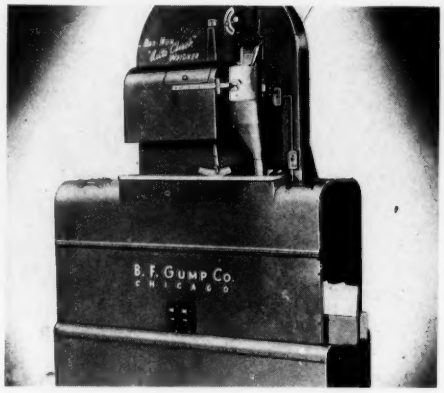
591 Hudson St., New York **Tel. CHelsea 3-3250**



2. A line consisting of an automatic weigher and bag opener, an automatic settling and shaping machine, an automatic closing and sealing machine and a rotating pressure table which holds the seal while the adhesive sets. Extensively used for sugar and other products. Photo courtesy Consolidated Packaging Machinery Corp.



3. Fully automatic machine which fills, weighs, shapes and seals bags. Seal is a gummed paper strip. Speed 25 to 40 per minute. Photo courtesy Arenco Machine Co.



4. Automatic bag feeder, opener and weigher for use in conjunction with hand or automatic closing. Speed 30 bags per minute. Photo courtesy B. F. Gump Co.

is capable of performing one or all of the operations included in the following list: bag feeding, bag forming, bag opening, bag filling, check-weighing, bag closing and bag sealing. Developed in almost every case to meet the specialized needs of a single producer or a single industry, these machines have come to form a group in themselves. Since differing machines perform differing groups of operations, no single description will cover the entire field. A perusal of the photographs and captions which illustrate this article will, however, give the reader a pretty fair idea of the possibilities inherent in such machines.

The introduction of automatic bag packaging machinery has, in some industries, resulted in a surprising change in the appearance of the bag itself since the automatic machine is capable of producing a bag closely approaching in appearance the neatness and attractiveness of the finest stiff containers. With this possibility, bag suppliers and bag users have turned from the cruder forms of bag decoration to the use of the finest forms of printing and of the more attractive outer bag materials.

STAPLING EQUIPMENT

by F. I. BROWN*

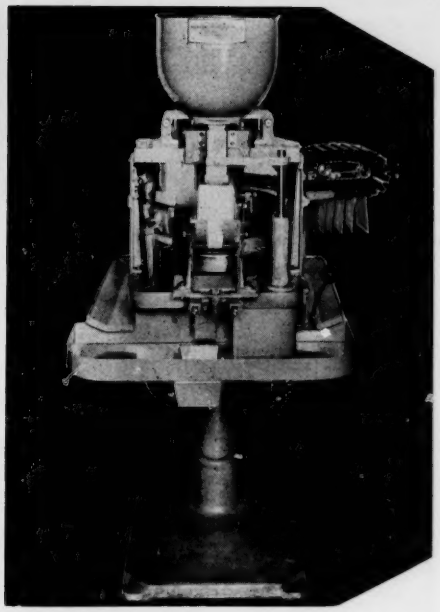
The use of stapling, as a means of closure for bags and boxes, has shown a great development during the past few years, furthered by the wide variety of stapling equipment that has been produced to meet specific requirements. Bag sealing with staples has grown from a spare time job of retail clerks until whole departments are now devoted to this particular operation. Whereas hand-operated machines were used, and still are, power-driven staplers and stitchers are effecting great savings in the packing and shipping departments themselves. One coffee roaster who adopted this method of sealing saved $276 on a single order of bags and $20 per month on equipment upkeep. He also saved 23 per cent of his packing costs and 18 per cent of packing time.

Among the advantages of stapling as a method of closure is the fact that it is neat, secure, and very fast. It does not impair the appearance of the container and the container may be used immediately, without waiting for an adhesive to set. Dampness does not cause the seal to

* Sales Manager, Bostitch, Inc.

XUM





Up To 3600 FILLINGS PER HOUR with the BROWN BAG FILLING MACHINE

BUY IT OR RENT IT!!

The Brown Bag Filling Machine produces up to 60 discharges per minute of flat open end packets or envelopes made from various grades of paper stock . . . filling free or nonfree flowing, granular and crystal materials.

Only one unskilled attendant is needed to keep the hopper and envelope magazine filled on this high speed, fully automatic machine.

To the manufacturer with a sampling problem . . . the Brown machine offers the opportunity to put through an inexpensive, attractive sampling program . . . which opportunity many leading sampling and packet packaging firms have already taken. In dozens of plants you will find the Brown Bag Filling Machine turning in a commendable performance.

If your volume does not run high enough to warrant purchasing one of these machines—lease it! Terms are reasonable. Write for full information.



Send for this **FREE** Interesting Booklet

SAMPLING SERVICE

For the convenience of many concerns with small or irregular sampling needs, Brown maintains a complete service for preparing your samples. We print and make all types of open-end envelopes. We aid in design. And in many cases we do your filling and shipping from our own factory. This service plus our special leasing service brings some portion of our work within the realm of your consideration. Let us analyze your problem and make recommendations on how we can aid you.

THE BROWN BAG FILLING MACHINE CO.
FITCHBURG MASSACHUSETTS



1. Electro-magnetic stapler used for bag stapling. Photos courtesy Bostitch, Inc.



2. Foot treadle-operated stapler for sealing coffee shipping bags.



3. Motor powered, treadle controlled stapler for large bags.

loosen, with the danger of the contents spilling out and it is practically impossible to remove the staple and again seal the package without detection, thus reducing the danger of pilferage to a minimum.

Four types of closure are generally used in this bag sealing work. The simplest form is where the bag is merely folded over at the top and fastened with one or two staples. Another method is the use of a cardboard bag top which folds over the top of the bag and is stapled through the bag, thus making a seal and furnishing a label at the same time. Where the bag is to be folded tightly over the contents, as in the case of a coffee bag, sometimes the two sides are folded in first and then the back and front folds lapped over each other and stapled with a single staple. When a non-sift seal is desired, a wide fold is made across the top of the bag and this fold is folded again, the sides being folded under at the same time. By inserting a stapling machine under the two ends of this fold successively and driving a staple in each end, a flat top, non-sift bag is produced.

Packers of asphalt, fertilizer, and other heavy bulk products, who use multi-wall paper bags, have discovered that stapling is an efficient and economical means of sealing these bags, too, and bags up to 100 pounds capacity are handled easily and quickly on equipment especially designed for this purpose.

A very recent development in packaging is the heavy kraft shipping bag, which is used as a shipping container for coffee and other items, carrying 12 or 24 1-lb. bags. This container is especially adapted to motor transportation and is widely used by packers operating their own fleet of trucks. When filled, the sides of these bags are folded in and the back and front are then folded over each other and stapled with a hand-operated or foot-operated machine, depending upon the preference and needs of the packager.

Users of corrugated containers have widely adopted stapling methods. Foot- or motor-operated bottom staplers and stitchers are used to seal the bottom flaps, while specially designed top staplers and stitchers are used on the tops. Some of these top staplers make use of a sealing blade which is inserted under the flap and a more modern development is a top sealing stapler which is operated from the outside of the closed container, closing its staple entirely from the outside and requiring the insertion of no sealing blade.

The smallest machines used for bag stapling can be operated in the palm of the hand. There are heavy duty hand models of larger size, as well as a wide range of foot- and motor-driven machines all the way up to large automatic box stitchers. Complete information is available in the industry and it is an easy matter for the user to obtain the equipment that is exactly suited to the requirements of his particular work.

One of the widest uses of stapling in recent years has been in carding for display. Items of merchandise that are too small to possess sufficient attention power or to carry adequate sales information are stapled to cards which present the message to the consumer. Such cards serve to identify the brand and the manufacturer, to convey a selling message that the article itself is too small to carry and the salesperson too busy to tell, to carry directions and explanations that insure the proper use and care of the product, to advertise other items made by the same manufacturer, and to discourage pilferage, in the retail stores, from counter displays.

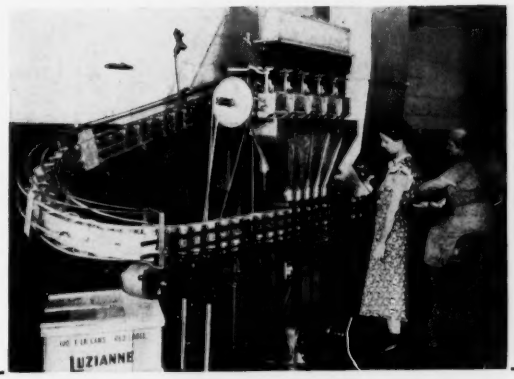
Practically any item that can be embraced by a staple can be carded in this way. Bottles or other fragile merchandise can be safely and quickly handled, because the pressure of the stapling machine can be accurately controlled without variation and the staple can be firmly clinched with no appreciable pressure whatever on the object being enclosed.

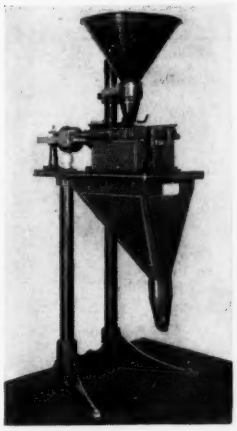
Speed is a big factor in stapling. Whether operated by hand, foot, or electric motor, the stapling machine clicks out the staples as fast as the operator can handle the work. Every click completes a stapling operation. It is much faster for most kinds of bagging and carding than tacking, riveting, gluing, hinging, sewing, hooking, and taping operations—operations which involve

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Package Better
With WEIGH RIGHT Equipment

Installation of WEIGH RIGHT automatic scale (Model PM) filling coffee and chicory in slip cover cans. Available in one to six weighing stations per unit and adaptable to cans, cartons, glass jars or containers. Most simplified and foolproof scale construction obtainable. Power feed, vibrating can mechanism or automatic stop and start are optional equipment. Speeds from 40 to 100 per minute. Weighs accurately coffee, sugar, oats, macaroni and other foods; chemicals and soap products.





MODEL B—SEMI-AUTOMATIC NET GRAVITY SCALE

This unit presents a real advance in smooth high speed operation. Its rated output on all accurately packaged products will prove its superiority. With fewer parts and longer life it means a better scale at a better price. Power feed models weigh teas, fine coffees, macaroni and other foods.

Do better packaging with WEIGH RIGHT equipment. Weigh, fill and seal your packages with higher efficiency and performance at lower cost. They're engineered for speed, accuracy and low operating cost. Write us for full information and find out *why* WEIGH RIGHT is a "buy" word in packaging.

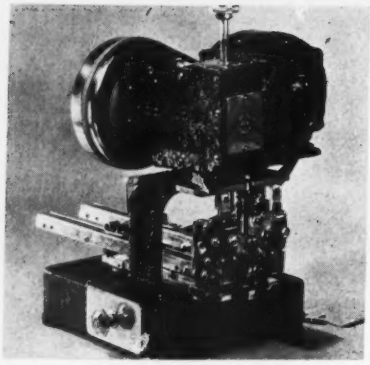


MODEL SA FILLER—GROSS AUGER WEIGHER.

Unit adaptable to fine ground products such as sugars, cocoas, spices, chemical and drug powders, fillers and cements. Augur feed mechanism designed for easy operation and maintenance. Quick cutoff gives accurate weights in a range of 1 oz. to 5 lb. Photo shows machine operator filling 2½ oz. bags.

WEIGH RIGHT AUTOMATIC SCALE CO.

Joliet, Illinois ***Representatives in Principal Cities***



5. Automatic multiple-head stapler for bag sealing. Photo courtesy of the Peerless Automatic Stapler Co.



4. Deep arm foot power stapler for assembling carton bottoms. Photo courtesy of the Acme Staple Co.

materials of all kinds. There is no waiting for an adhesive to set, and the staple will hold regardless of temperature or moisture. Furthermore, stapling machines are portable and can be placed wherever most convenient for the work in hand. For example, in retail stores, where pre-packaging is to be done by clerks in odd moments, hand-operated machines are used on each counter where the work is handled. Manufacturers and distributors can better concentrate their work and more often use foot- or motor-driven machines for both packaging and display. In the field, where fruits and vegetables have to be packaged as picked, stapling machines are used advantageously.

The automatic-feed staple-hammer is also widely employed in packaging and shipping operations. Driving a staple like a double-pointed tack, with each single blow, this hammer is an efficient time-saver in covering crates, in lining boxes, cars, and boats, and in tacking cards and labels on boxes, crates, and barrels. Requiring but one hand for operation, it leaves the other hand free for handling the material that is being tacked. Likewise, hand- and power-staplers, which use staples of different sizes and various type points, are utilized in the assembly of fibre shipping containers.

Summing up, stapling permits a method of fastening which is secure, economical, speedy, and offers flexibility in use. Both hand- and power-devices have been improved to meet established and special uses.

On large production, wire stitchers instead of staplers are often used. A stitcher, in the parlance of the industry, is a machine which makes its own staples from a coil or spool of wire. Each operation of the stitcher-head drives a staple and forms another one, ready for the next stroke. In staplers, on the other hand, the staples are pre-formed and are fed into the stapling machine in strips held together by an adhesive. Each type of machine has its advantages for particular kinds of work and a qualified manufacturer's representative can quickly determine what machine is best adapted for the requirements of a specific job.

CASE PACKING AND SEALING EQUIPMENT

The increasingly broad utilization of corrugated and solid fibre shipping containers, by packagers of every variety of product, has brought in its train the development of semi-automatic and automatic machines which open, pack, seal and code mark such containers, at high rates of speed and with remarkable efficiency. Whether any given plant will mechanize all, or only some, of these operations will naturally depend upon the nature of the product packed, the volume of production and other considerations of a specialized type.

Case packing equipment for can packing consists essentially of a series of inclined runways which receive and gather cans as they roll off the conveyor lines, until the proper number of cans have been assembled to fill one layer in the shipping container. The cans are then pushed, horizontally, into the container by a hand or electrically operated device. If the container is of a type to accept more than one layer of cans, this operation is repeated a sufficient number of times to fill the waiting shipping container.

Bottle casing units work on a similar principle, but use a vertical drop, rather than a horizontal push, to effect entry of the packages into the shipping container. Bottles come off the conveyor lines and are gathered over a grid which correctly positions them. At the proper moment, and under the control of the operator, the bottles drop into the shipping container which has been automatically raised until it rests just under the grid. The shipping container is then lowered back to the conveyor line and the operation repeated with a new empty shipping container.

Carton packers have also been developed, working on principles very similar to those of the can packer with the exception that the rolling action of the can is re-

XUM



At the end of some days our chemists turn off the lights and lock the lab door, seemingly without having accomplished a thing.

Those days are frequent.

But often too are the days when they test a formula they've developed . . . put it through the paces . . . and report to the office that *another* adhesive problem has been solved!

In the wide UPACO line is probably the *right* adhesive for your package. But if not, our chemists willingly take up your package materials, your product . . . and work on it till they've found the glue or paste or cement that can do a satisfactory job.

They've a world of experience behind them . . . which is why, in most probability, they've acquired a reputation for conquering most adhesive difficulties in jig time.

Why not put them to work on your problem? Our laboratory is at your service, so just send us in detail your requirements and an outline of your problem; include also samples of material to be sealed . . . and a report will be forthcoming promptly on what *we* can do. Write us.

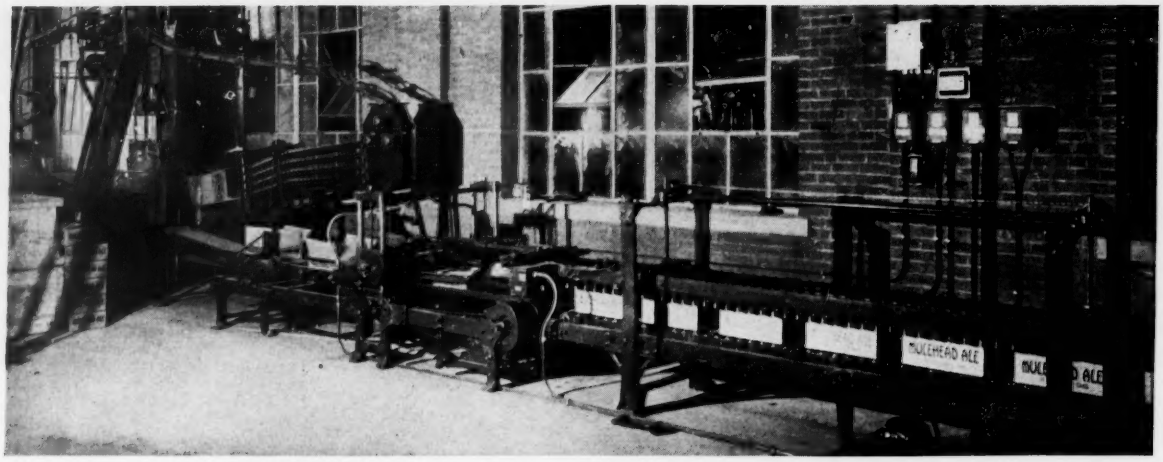
TRANSPARENT CELLULOSE— great thing for sales . . . but what an adhesive maker's nightmare . . . until UPACO developed, not one, but more than twenty formulae.. Small wonder we make most cellulose adhesives used.

TRANSPARENT LACQUER COATING another booster of sales . . . and another headache for adhesive men. We solved the problem and UPACO adhesives are used by a *multitude* of manufacturers.

WRAPPING MACHINES OF 1939 make yesterday's "speed demons" look rooted at the post! And yesterday's adhesives are out, too! You need 1939 UPACO adhesives —faster drying, easier applied—to obtain maximum satisfaction with new equipment.

UNION PASTE CO.

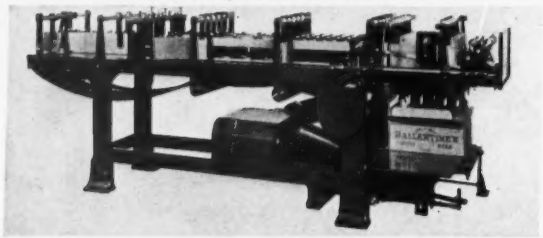
200 BOSTON AVENUE MEDFORD, MASS.



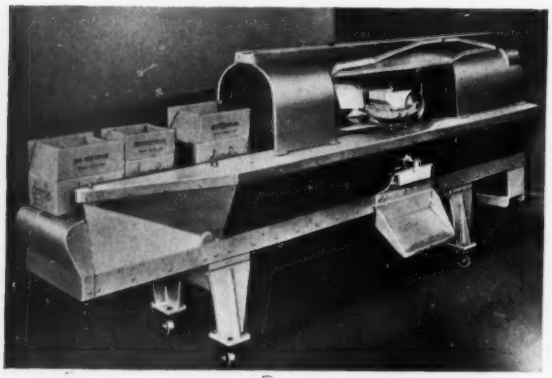
1. Packer and sealer handling beer cans and cases. Photo courtesy Standard-Knapp Corp.



2. Motor driven case loading machine for can packing. Photo courtesy Burt Machine Co.



3. Machine for case loading of beer bottles. Photo courtesy Standard-Knapp Corp.



4. Sealer for gluing different sizes of container without manual adjustment. Photo courtesy J. L. Ferguson Co.

placed by a pushing action to get the various rectangular cartons into position before placing them, en masse, into the case. In many plants, of course, case packers are not utilized, either because of limited production, frequent size changeovers, or a desire to combine hand packing of cases with an inspection operation. The use of packing machines has, however, increased to a remarkable degree during the past few years, particularly in the canning and, more recently, in the brewing industries.

Once the cans have been packed—by hand or by machine—it becomes necessary to firmly seal them for shipment. The simplest devices for this purpose are the hand glue sealers, which are simply adjustable pressure units mounted on top of roller conveyor sections through which the hand glued cases are passed. Pressure is exerted upon the case flaps until the glue has properly set.

Case gluing and sealing units of an automatic type receive filled, but unglued, cases directly from the conveyor line and apply adhesives to both the top and bottom flaps of the cartons with the goods already packed therein. They then fold the flaps into closed position and pass the sealed containers through a compression unit, where the glue sets. Speeds of from 200 to 1200 cases per hour are practical on such automatic equipment. Such machines may be equipped to seal and glue top flaps only, as in the case of shipping containers for bottled goods which have previously been used to carry the bottles from the glass plant to the packaging plant and thus have already had their bottoms pre-sealed.

The machines are completely automatic, require no operators and are adjusted to start in motion whenever a case is presented to the machine by the conveyor line. Such machines are adjustable for various sizes of corrugated or fibre shipping cases.

Combination case packaging and sealing machines have been developed which automatically remove knocked-down containers from a magazine, open and fill them with packagess and seal all flaps.

Code marking and serial numbering devices have been developed for use in conjunction with case packing machines, to identify contents and date packed, or to provide any other desired data.

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View of barrel racks of stock glues and electric lift. Orders are scheduled for same day shipments



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As part of our process, adhesives are filtered through a 60-mesh screen, thus making impossible the presence of any foreign matter in the finished product.

Our products are packed in wax-lined wooden barrels for storage and shipment. The wax lining prevents evaporation in storage and cuts down waste, because adhesives do not cling to the wax, thus allowing all of them to be used.

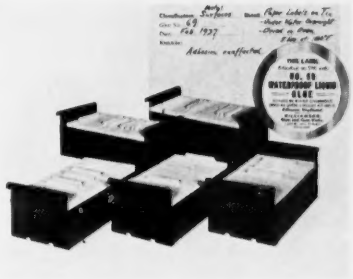
A test sample is taken of every shipment, and kept as a permanent laboratory record of the product.

We do not believe there is any substitute for quality—and quality in our products is developed and maintained by these precision methods.



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Where new glues are developed and special adhesive problems are solved for our customers



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A ready reference fund of facts on hundreds of adhesive problems with sixty-two classifications

For high-speed machine sealing and labeling operations

For gluing transparent sheets, plain and moistureproof



Trial samples of Glues and descriptive Folders sent on request

For joining dry waxed paper without heat

For spot labeling tin and steel containers

WILLIAMSON GLUE AND GUM WORKS

2350 West Eighteenth Street Incorporated 1914 **Chicago, Illinois.**



ADHESIVES

by GERARD B. CLORAN*

This is an age of specialized manufacture, of high speed production and of new developments in finishes and coatings. Individuality in design has left little of the standard gluing operations of former years. We are farther away from a universal glue today than we ever were heretofore.

In keeping with this transition, progressive adhesive manufacturers have installed technical service departments to cater to the individual wants of glue users and have developed hundreds of new formulae to cope with the requirements of faster machines and special stocks. Each of these new adhesives has a specific purpose and, therefore, a confined usage.

As the result of this specialization, our biggest problem today is selecting (or creating) the correct glue for the individual's need. Since no two jobs are identical, we cannot work on precedent. That is why the adhesive business is chiefly one of service. Recommendations must be reached by more scientific means—by fine-comb analysis. Every detail of the surfaces to be fabricated, method of operation and conditions to be met in the factory and field must be considered.

It is the assumption that "anything sticky will stick anything" and "anything that sticks for a while will stick forever" that accounts for much of the difficulty experienced today in package labeling, wrapping and sealing. Frequently, glue users adopt the grades run by their competitors with no thought to differences in plant conditions, equipment, materials and skill of their labor. They change their paper, board, etc., without thinking of how the gluing requirements have been altered. This results in losses and complaints which are needless and unjustified. The glue is blamed for failing to do work for which it was never intended.

Since the selection of an adhesive nowadays pivots on rather fine points, the importance of clear, concise and complete specifications is obvious. The supplier should be told *what* is being packed and should be supplied with samples of the labels, wraps, cartons, etc., indicating *where* the glue is applied. On the other hand, the user should conscientiously follow the manufacturer's directions for handling adhesives. If instructions are given to weigh the water to be added, it should be weighed and not left to guesswork. (Such instructions, of course, apply only to the initial batch, after which the proper glue and water levels can be marked on the mixing tank.) The gluing machines should be kept clean and in good repair.

The following questionnaire should prove helpful in determining all the features of the most common packaging operations bearing upon adhesive selection.

* National Adhesives Corp.

Surface Considerations

Paper: Is it a label, wrap or bag? Is it kraft, bond, sulphite or glassine paper? Is the stock litho coated, book, antique or otherwise finished? Is it plain, inked, varnished, lacquered, dry or wet waxed, foil or cellophane laminated, pyroxylin or otherwise coated? What is the weight of the stock? Is it heavily sized, calendered, embossed? Is it colored and are the dyes alkali-sensitive or water-soluble? Is it trimmed accurately to size? What are the dimensions? What is the direction of the grain—parallel with or perpendicular to the printing or lithography?

Board: Is it a box, carton, case or tube? Is it plain chipboard, clay coated or silicated board, news, kraft, foil, glassine or asphaltum lined board, dry or wet waxed, grease-proofed, pyroxylin coated or otherwise moisture-proofed? What point board is it? What ply? What are the dimensions? Is it colored or natural, sized or porous, rough or smooth? Is it uniform? Is it accurately trimmed? Is it lightly or deeply scored?

Glass: Is it a bottle, jar or vial? Is it plain, frosted, stippled, flint glazed or opal? Is the labeling surface round, flat, concave, convex or angular? Is it labeled wet or dry, clean or greasy? What is the temperature of the surface when labeled?

Tin: Is it plain, lithographed, lacquered, enameled, or painted? Is the can round or square? Is it clean or greasy, wet or dry?

Foil: Is it a label, wrap, bag or box? Is it tin, lead or aluminum foil? Is it plain or lacquered? Is it embossed? Is it all metal or backed with paper or glassine? What is the thickness of the foil?

Cellophane: Is it a label, wrap, bag, tube or window? Is it a viscose sheet such as "Cellophane" or Sylphrap? Is it plain (P.T.), or moisture-proof (M.S.T.-M.P.-L.A.T.-M.T., etc.?) Is it an acetate sheet or other transparency?

Factory Considerations

Type of operation: Is it spot or overlap labeling? Tight or loose wrapping? Carton, case or bag sealing?

Method of operation: Is the pasting or gluing done by hand or machine? Is the applying done by hand or machine? Give the make and model of all equipment.

Type of application: Is the adhesive applied indirectly from a table, transfer roller or dauber, or directly by a glue roller, stencil (silk screen), belt, paddle, force-feed device, spray?

Speed of operation: How many packages are completed per hour? How long is the seal under pressure?

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It's *easier*—and less expensive—to *prevent* gluing trouble than to stop it.

Before you adopt a new label or container, or make any changes in your gluing operations, consult our Service Department. We'll give you sound advice which may save you numerous production headaches later on.

National Adhesives Corporation

820 GREENWICH ST., NEW YORK—CHICAGO—PHILADELPHIA—BOSTON—SAN FRANCISCO—and All Principal Cities

Operating conditions: Where is the plant located? What is the work room temperature? Is the gluing equipment new or in good condition? Are machines suited to the work and properly adjusted?

Field Considerations

Where will the package be stored: In cold sheds, heated warehouses? Refrigerators? Damp cellars? Steaming bathrooms? Ice water?

How will it be used: In what climates?

When will it be used: Shortly after distribution, or has it a long shelf life? What about re-use?

Miscellaneous: Must the package comply with Pure Food or Drug regulations, Government tax stamp regulations, B.A.I. regulations or other laws?

SET-UP PAPER BOX MAKING MACHINERY

by C. A. CLAUS*

Set-up paper boxes, aside from "stock boxes," are important factors in packaging, since so many products are more suited, economically and by nature, to the features of the set-up paper box. In this field the development of automatic machinery has provided the means of creating many effects, hitherto unobtainable, save by costly hand labor. This is important to those manufacturers who make products in mass, permitting either mass purchase, or installation of their own equipment for producing their own boxes. The facilities at the disposal of such manufacturers enable them to set up the box-making units required for their mass production, with machine attendance reduced to a minimum.

Set-up boxes in relation to the methods of making the many types and styles may be grouped as follows:

1. Stripped and Top-labeled Boxes: The question of paper wastage prompted a different technique in box-making. Since the bottom of the box is almost never seen, the larger boxes offer a decided saving in cost when made merely by covering the sides of the box, turning over the bottom edge, and turning in the upper. This type of box, used for candy, shoes, rubber goods, shirts, collars, knit-goods, hosiery, etc., can be made on either semi-automatic or fully automatic units. Naturally on large runs of standard size, the economy is appreciable, without really affecting the appearance of the box. For such work, fully automatic machines are available, although for most purposes the semi-automatic units are favored.

The additional feature of applying separate labels for tops and ends, where more than one article is packaged in boxes of the same, or approximately the same, size or shape, is simplified by the use of a newly developed and highly economical unit, operated either separately or "in line" with the stripping machine; fully automatic, or semi-automatic, as desired. This machine glues "all over," is adjusted to use less adhesive, and eliminates all glue seepage, with perfect register.

2. Wrapped Boxes: This is the method by which many of the ordinary boxes are made. The process, mechanized, still requires a skilled operator, with part time of an attendant to feed and remove the completed boxes. Recent improvements have increased the potential speed of the wrapper, the gumming of the wraps being done by a gluing unit, which conveys the wraps to the operator. There is also an improved unit which takes the wraps from a hopper, applies the adhesive, automatically registers the set-up box on the wrap, and feeds it to the wrapping unit.

3. Blanket or Pinched-top Boxes: These are packages made in box-form, combining paper of two different types or colors, "blanketing" the top with the trade-mark label, and "stripping" the sides. There is a fully automatic unit capable of precision work.

4. Padded-top Boxes: Like domed tops, the padded top is an effect which adds distinction to the package. Mechanical units which handle the paperboard box and equip it with a cotton or paper pad, spotting the pad correctly on the inside portion of the top-label, and applying the complete, padded top to the box, have been standardized, so that a wide range of box sizes can be fitted with merely minor "form" adjustments.

5. Odd-shaped and Multi-cornered Boxes: Fully automatic box- or package-making units, are available for the "hand-made" type of box—those containers with unusual shapes—three, four, five cornered, even six or eight sided.

6. Slide Boxes: Many items are packed in slide boxes, the type comprised by a shell, and the slide which carries the product, and fits snugly into the shell. Machines for making the shells, and for the slides as well, are available. They are essentially speed machines, designed to operate at low cost.

7. Telescope Boxes: This is the type of box wherein the lid fits completely over tray. Methods of making these vary from the semi-automatic type requiring a single attendant, to the fully automatic (see paragraph 2) which takes board and paper from feed rolls. Such units are particularly economical where quantity production is a factor. The box-maker, for instance, can produce first, the tray, and then its telescopic cover, and at other times can produce just trays of the same, or varying sizes, intended for transparent cellulose wraps.

8. Boxes with Necks or Shoulders: Problems in packaging, which can be met with rectangular boxes,

* Vice-President, New Jersey Machine Corp.

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may find attractive appearance in the happy solution of production by a unit which makes tops and bottoms of exact size and obtains a snug fit for them by use of a "neck," which is produced on a different unit, inserted after an inside gluer applies adhesive to the boxes as a conveyor feeds them from the box-making machines.

9. Hinged-top Boxes: One of the problems in production is the application of a hinge to packages or boxes so that the container is permanently attached to the top by a paper hinge, either inside or part of a top and bottom label. There is a machine which does this work successfully and economically.

10. Labeling: Rarely is a set-up box complete without applying a label. Recently-designed equipment for this type of work handles either paper or foil labels, of any shape, in a wide range of sizes, gives perfect register, blister-free, and clean work because the adhesive feed is controlled to eliminate glue seepage.

FOLDING BOX MAKING MACHINERY

by ROGER C. DICKEY*

The designation, folding carton or folded-paper box, refers to a package of any size, shape, or style, made from one piece of folding box-board which has been cut and creased in such a manner as to form a complete container with folding flaps at both ends.

After the blank has been printed, cut, and creased, it is ready to be glued and folded on either hand-gluers or automatic gluing-equipment. Wherever high production at low cost is paramount, automatic gluers will be found to be universally used. Modern high-speed automatic gluing-machines are capable of folding and gluing boxes at speeds up to 100,000 per hour, depending upon the size and shape of the blank.

Present-day gluing-machines are equipped with several types of feeding devices so that the most efficient feed can be employed for handling the various sizes and qualities of board being run. The feed of a gluing-machine is very important because it determines to a large extent the quantity of work it is possible to run.

After the blanks are fed from a pile, one by one, into the gluing-machine, they are gripped by carrying-belts which carry the blanks over a glue-wheel which revolves in a glue-pot. To assure a thin, continuous, unvarying film of adhesive on the glue-wheel at all times, it is customary to employ a scraper mechanism. After the glue is applied, the folder-belts begin the action of folding the right-hand panel and the left-hand panel, with the glue-lap attached. The left-hand panel is folded down first, and the right-hand panel is folded so that the outer edge comes over the glue-lap. When the blank leaves the fold mechanism it passes between breaker-rolls, which exert pressure over the folded crease-lines and prevents the blank from popping open. The blanks are then counted, and as a general rule every fiftieth carton is thrown slightly out of the line of travel so that the stacker-attendant can gather them in predetermined lots.

It is possible to secure cams, which are mounted on the counter, to change the count. High-speed electric counters and mechanical counters are used on folding-box gluing-equipment. After the blanks are counted, they pass from the stacker delivery into the stacker-compression section, which moves at a very slow rate of speed. The blanks are accumulated and passed between a lower stacker-apron and an upper stacker compression-belt which allows the glue in the glue-joint to set. The cartons then emerge, and on some machines it is possible to turn them on edge and automatically jog them. All the delivery-attendant has to do is to pick up the previously-counted cartons in unit lots and either place them in a tying-machine or in the container in which they are to be shipped.

Recent attachments which make it possible to fold and glue spot-glued boxes on a standard gluing-machine have been developed. The attachment consists of a spot-gluing section which is attached to the front end of the machine and it applies adhesive to the blank in predetermined areas, and a special stacker-section which applies sufficient pressure over the spot-glued areas to assure that the adhesive sets properly.

During the past few years there has been a certain demand for folding boxes in which all of the scores have been broken. When the scores of a carton are broken it opens freely on automatic-filling machines. This is especially true in small cartons, and with the universal use of automatic-filling equipment, the demand for cartons in which the scores are broken has been increased. In recent years there has been a growing demand on the part of the box manufacturers for combination box-making machines which will perform a number of different operations. To meet this demand there has been developed a new all-purpose machine which will handle the following classes of work: Regular glued and folded cartons; prefolded, glued, and folded cartons; single- or double-folded double-wall cartons, and spot-gluing single- or double-folded double-wall cartons.

Special equipment is used in the manufacture of "window" cartons. Here the carton-blank travels from the feed by chain-carriers to the proper position where a glue segment transfers a sufficient quantity of adhesive around the edge of the hole in the carton. Then the carton travels to the window-applying mechanism, where the right length of cellulosic material is severed

* The International Paper Box Machine Co.

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from a web and placed securely over the entire glued surface. Each sheet of material must be cut to uniform length and transferred in precisely the same location on each carton. The pliability of such window material and the electrostatic quality of acetate papers have presented many problems to machinery designers. One method of transferring the window material to the carton-blank is by the use of an aluminum drum in which are suction holes. Suction is created when the material is severed from the web, the drum revolves, and the suction is released when the material is combined with the blank. The blank is then conveyed to the stacker. The machines for performing these operations have been so perfected that single-tier machines will handle two hundred carton blanks per minute, while double-tier machines are capable of handling four hundred blanks per minute.

For applying paraffine to cartons there are two types of equipment. One type applies what is known as a hot finish, and the other applies a high-gloss finish. On both types of equipment it is possible to adjust a machine so that no paraffin is left on the glue-lap margins. This means that it is unnecessary to employ de-waxing equipment and as a result the paraffin cartons can be folded and glued without further treatment on a regular gluing-machine. Many of the largest concerns that produce butter, lard, ice cream, and other waxed cartons are using such equipment.

FIBRE CAN MAKING MACHINERY

by W. H. FRICKER*

In the semi-automatic process of making fibre cans paper board is first passed through a sheet gluing machine where the adhesive is applied, leaving the uncoated section required for the inside ply. This sheet is laid on a forked rack thus enabling the adhesive to obtain its proper tack for rapid adhesion.

The sheet stock is then taken to the tube-rolling machine. The uncoated section of the sheet stock is inserted into the lip of a collapsible mandrel on the rolling machine, and the treadle pressed, closing the lip of mandrel and simultaneously starting the mandrel in motion. The tubes are then wound to conform with the mandrel dimensions. The number of ply or wall thickness of tube is determined by the length of the sheet being wound. The tubes or can bodies are usually rolled into lengths approximately 36 in. long. It is the regular practice to cut these tubes to individual body can heights on the same machine as this machinery unit is equipped with a cutting bar which holds a series of cutting knives. The location of these knives on the knife-bar severs the long tube into predetermined lengths.

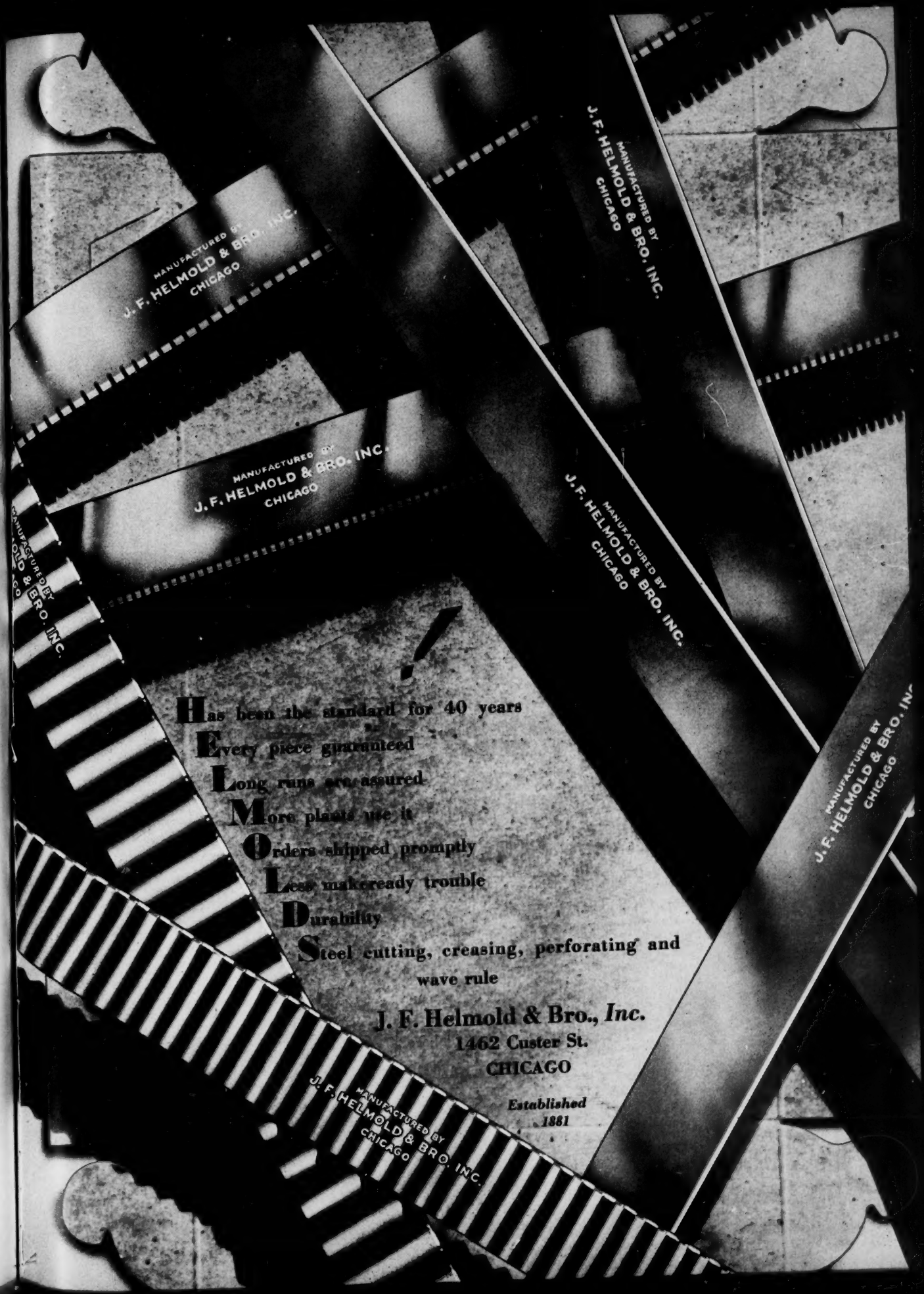
The reception of the fibre-bodied can by manufacturers and packers alike was so outstanding that fully automatic equipment was designed and built to obtain increased production of the can bodies. The spiral-tube winding machine was developed for taking paper in ribbon form from the roll, winding it over a mandrel to exact diameter requirements and to the wall thickness desired, this wall thickness being determined by the thickness of the ribbon board stock and the number of ply or ribbons being applied.

This means that the paper tube is automatically wound to accurate diameter and of correct wall thickness. An independent saw or cut-off, put in straight line with the winder, severs this traveling spiral-tube body. The saw mechanism travels on a carriage with the tube thereby not retarding travel of tube while in process of cutting. This independent saw cut-off is located at proper distance from the winder to permit tube to dry sufficiently before actual cutting. The next operation is that of recutting this 36 in. length tube into can-body lengths. This is done on a recutting machine where the tube is merely slipped onto a mandrel. The cutting arbor with knives properly located comes into contact with the revolving tube and severs same into pre-determined lengths.

Spiral tube equipment as it is designed and built today has every convenience for obtaining high-class tubing with snug butts or joints, as well as applying high-priced finishing paper to the outside of the tube, which enables the user to manufacture not only plain fibre can products but also high-class cosmetic powder boxes. The spiral tuber as outlined above, with special combination glue and paraffin units, is used extensively in the manufacturing of food containers such as used for packaging ice cream and delicatessen products such as salads, baked beans, etc.

The most modern equipment used in the manufacture of fibre-bodied cans is the automatic convolute winding machine. This winder accepts the paper stock from the roll, applies adhesive, automatically feeds the paper into the lip of the collapsible mandrel, cuts the paper to exact lengths and winds a round, rectangular or irregular shaped tube body from three to six plies. A slitting attachment is built into this machine enabling the slitting of the paper stock in travel so as to allow the obtaining of multiple can bodies within the given-range of the machine. The automatic labeling attachment is a feature, which applies lithographed labels to the can bodies at the time of winding, thus producing a finished labeled can body ready for the seaming of tin tops and bottoms. Every operation of this machine is completely automatic.

* General Sales Manager, M. D. Knowlton Co.


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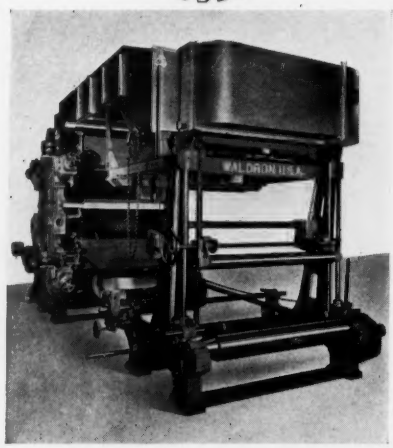
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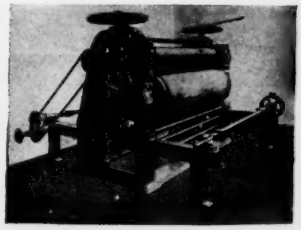
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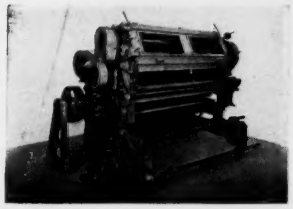
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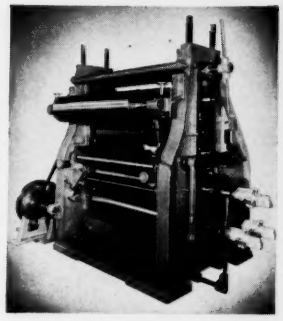
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Waldron Coating Machines are available in knife, combination roll and knife, roll coaters, reverse roll brush type and spray head, covering the entire range of coating requirements. Regardless of the kind of coating material used—thin staining material for tints, waterproof material, varnish or lacquer—a Waldron machine can be depended upon to apply it faster, smoother and better.

THE NEW *Fluid Ink* PRESS

Designed to distribute any type of fluid ink—water colors, aniline, pigment lacquer, rotogravure, letter press and surface printing inks. Adaptable for tandem operations for producing over-all decorative effects as middle grounds. May also be operated in tandem with board laminator, corrugator, sheeting machine or other board mill equipment. Surface prints may be superimposed upon engraved effects when using inks of light base. Quickly convertible from engraved to surface printing operation and vice versa. Various models are proportioned for handling goods of all widths of from 30 inch up to 90 inch with equal accuracy. Each press unit permits addition of frame sections at any time for extra colors and a novel inter-connecting mechanical drive permits register adjustments without stopping press. Electric and air drying in tandem. Goods may be festooned or rewound direct. The most versatile press ever developed.



New Waldron Laminating Machine

Waldron Waxing Machines

Of heavy construction suitable for high speed operation and with either water bath for high lustre or cylinder chilling rolls with brine. Nashua—Kalamazoo licensed suction method for water removal used when run with water dip method of chilling.

Waldron Laminating Machines

For the combining of cloth, paper, regenerated cellulose and boards using paste, asphalt, lacquer, latex, and thermoplastics. Ideal for applying adhesive to transparents smoothly and without "ribbing."

Engineering Service

To assist in solving your particular processing and production problems. Inquiries of any nature invited and treated in confidence.

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SECTION ELEVEN

PRINTING

Pages 487 to 508

PRINTING INKS FOR PACKAGES

PROPERTY TESTS OF INK PIGMENTS

PACKAGE PRINTING MACHINERY

COATING, LAMINATING AND EMBOSSING

ROLL LEAF STAMPING AND EMBOSSING

TRANSPARENT SURFACE COATING MATERIALS

VINYL RESINS FOR COATING SURFACES

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PRINTING INKS FOR PACKAGES

by DAVID DONOVAN*

Ink usually represents no more than four per cent of the total expense of a printed job, although in package printing this is likely to run somewhat higher. Some package designers hardly give the ink a thought. They just assume that whatever colors they choose can be matched by the printer, and that's that.

In the field of packaging, more than in any other phase of the Graphic Arts, ink is a vital consideration. For in package printing, the ink must often meet unusual specifications. That the ink be the right color is not enough. Obviously, the ink cannot fade, for most packages are exposed to strong light. It must be reaction-proof to whatever a particular package contains. It cannot impart any odor or any color to the package contents. And it must resist rubbing and scratching so that it will *stay* attractive after it is on store shelves.

The manufacturer who accepts a package design with a carefree disregard for the limitations of the inks required, may find himself in grave difficulties. In some colors, there are inks to meet almost any qualifications of fastness or permanence. But, in certain shades, pigments are not available which would be satisfactory for every conceivable package requirement.

Here is a check list of questions which packagers should consider when they describe to the package supplier what type of job they are submitting:

Is the package likely to be exposed to sunlight?
Will it be subjected to heat?
Will it be subjected to water or water vapor?
Will it be handled often?
Is it likely to be scuffed or marred?
Will it need to be proof to perspiration?
Will it need to be proof to special deteriorants, such as soaps, alkalies, acids, alcohol, oils, fats, etc.?

Most of these considerations would occur to any thoughtful container manufacturer, but quite often they are not thought of in terms of printing inks. It must be remembered that when certain colors are specified by the designer, the pigments necessary to create these colors may not be able to fulfill the physical requirements of the job. In any case, it is often necessary to work out special ink formulas to meet both the color and resistance qualities which are required.

New Permanent Pigments

The chart which follows this article may be helpful as a reference to the characteristics of the pigments commonly used in making inks for packaging. New pigments are being discovered continually which make it easier for packagers to get the colors they want and, at the same time, maintain the necessary permanence. For example, the recent introduction of Syan Blue B (copper phthalocyanine) offers packagers a pigment which is unusually resistant to all deteriorants and which provides blues which compare favorably in an esthetic sense with Peacock and other existing shades of a much more fugitive nature. Syan pigments are now being formulated in greens, as well as in the original blues.

Packagers of foodstuffs have special problems to contend with, in addition to the ordinary considerations of ink for containers. Inks used to print packages or wrappers for edible products must, of course, be non-toxic and non-reactive with the product. Ink vehicles (or varnish) made from linseed oil, rosin, perilla, and nearly all of the vegetable drying oils, produce films of negligible toxicity. China wood oil has a slight toxic quality and it is not recommended as the sole vehicle where foodstuffs are concerned. Pigments, on the other hand, range from Paris Green, an arsenic compound of decided toxicity, to such harmless materials as calcium carbonate.

Allergic Reactions

Today, with "allergy" becoming a popular medical term, packagers may soon be forced to consider the effects that certain inks or, for that mattter, certain papers and cloths used in packaging, will have on sufferers from this strange malady. Allergies are abnormal reactions to substances either breathed, touched, or taken into the digestive tract. They give rise to such afflictions as hay fever, asthma and hives.

Some persons are affected by linseed oil and, hence, are allergic to a majority of printed matter, since this is a very common ink ingredient. Others are allergic to certain pigments, especially reds, and they may suffer from contact with these pigments in printing.

Since only two per cent of the population now feels allergic reactions, it is not necessary for packagers to be unduly concerned about the effects their packages might have on such a small segment of the market. On the other hand, medical manufacturers selling remedies to sufferers from hives or hay fever would do well to consider the possible allergic stimulations in their packages.

New Ink Developments

Several recent developments in printing inks are helping container printers. The use of new types of quick-drying inks for package printing is increasing. In this process, the ink dries instantly, under heat, and cartons coming off the press may be fed directly into folders,

* International Printing Ink Division, Interchemical Corp.



XUM

a decorative package

a protective package

an easily cleaned package

a sales-appeal package

XUM



cutters, or other fabricating machines. In addition, since the ink dries in a split-second, there is no chance for offsetting or blurring and the printed result is superior. Inks for such printing are formulated from ingredients which are entirely harmless, and they are ideal for use in printing food containers.

Other improved inks for letterpress package printing, such as Holdfast, are providing colors with sharper printing qualities that are unusually resistant to rubbing and abrasion.

In the packaging field, during the past year, there has been a decided trend to gloss printing. While gloss inks are by no means new, they have been substantially improved within the last eighteen months and recently they have enjoyed a very definite vogue. These inks serve substantially the same purpose as an overprint varnish, at a considerable saving.

The important consideration, where gloss inks are to be used, is the type of paper stock for the job. It is very necessary that the ink maker have this information, so that he can adjust his formulations accordingly.

In lithography, both on paper and on metal, the new Lithox inks are being widely adopted. More than two million pounds of these offset inks were used last year. These inks are important to packagers, because of their superior qualities of resistance and, in many cases, because of their stronger colors.

During 1938 there was a revival in aniline printing, stimulated, in part, by the development of new aniline inks that are fast to light and resistant to water bleed. They dry almost instantly on the press and may be formulated to pass the most rigid tests for use on food wraps.

New aniline inks have been produced recently for use on kraft or white paper; for transparent aniline printing; and for printing on cellophane. This third type is thoroughly opaque.

Improved wax-set inks for use on paper milk bottles and other dairy product containers have been partially responsible for the increased volume and higher quality of work in this field. New inks for printing on glass and on ceramics have also been produced recently in ink manufacturers' research laboratories.

PROPERTY TESTS OF COMMON PIGMENTS USED IN PRINTING INKS. COMPILED BY CARL E. FOSS*

Pigment	Indoor	Outdoor	Paste	Alcohol	Acid	Alkali
Natural Inorganic Group						
Raw Umber	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Raw Sienna	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Artificial Inorganic Group						
Burnt Umber	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Burnt Sienna	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Cadmium Red	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
English Vermillion	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Orange Mineral	Good	Poor	Excellent	Excellent	Good	Good
Chrome Yellow	Excellent	Excellent	Excellent	Excellent	Good	Poor
Cadmium Yellow	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Zinc Yellow	Excellent	Poor	Fair	Excellent	Poor	Poor
Chrome Green	Excellent	Excellent	Excellent	Excellent	Excellent	Poor
Iron Blue	Excellent	Excellent	Excellent	Excellent	Good	Poor
Ultramarine Blue	Excellent	Fair	Excellent	Excellent	Poor	Excellent
Organic Group						
Bismarck Brown	Fugitive	Poor	Poor	Fair	Poor	Poor
Maroon	Excellent	Fair	Excellent	Good	Excellent	Poor
Madder Lake	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Rhodamine	Fugitive	Poor	Poor	Poor	Fair	Poor
Rhodamine (Perm)	Good	Good	Excellent	Poor	Excellent	Good
Eosine	Fugitive	Poor	Poor	Poor	Poor	Poor
Lithol Rubine	Excellent	Poor	Fair	Good	Poor	Poor
Lithol Red	Good	Fair	Excellent	Good	Excellent	Poor
Scarlet Pulp	Fair	Poor	Poor	Excellent	Poor	Poor
Pigment Scarlet	Excellent	Fair	Poor	Excellent	Poor	Poor
Para Red	Excellent	Excellent	Excellent	Poor	Good	Excellent
Toluidine	Excellent	Excellent	Excellent	Fair	Excellent	Excellent
Red Lake D	Good	Fair	Excellent	Good	Poor	Good
Red Lake C	Fair	Fair	Excellent	Good	Excellent	Fair
Fire Red	Excellent	Excellent	Excellent	Fair	Excellent	Excellent
Permatone Orange	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Orange II	Fugitive	Poor	Poor	Good	Poor	Poor
Hansa Yellow	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Tartrazine Yellow	Poor	Poor	Poor	Excellent	Poor	Poor
Quinoline Yellow	Poor	Poor	Poor	Fair	Poor	Poor
Naphthol Yellow	Poor	Poor	Good	Excellent	Poor	Poor
Acid Green Lake	Fugitive	Poor	Poor	Good	Poor	Poor
Malachite Green (Perm)	Good	Fair	Excellent	Good	Excellent	Excellent
Brilliant Green	Good	Fair	Excellent	Good	Excellent	Excellent
Setoglaucine	Good	Fair	Excellent	Fair	Excellent	Good
Patent Blue	Fugitive	Poor	Poor	Excellent	Poor	Poor
Methylene Blue	Fair	Poor	Poor	Excellent	Poor	Fair
Induline Blue	Fair	Poor	Excellent	Fair	Good	Good
Indigo	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alkali Blue	Excellent	Fair	Excellent	Poor	Excellent	Fair
Victoria Blue	Good	Good	Excellent	Poor	Excellent	Excellent
Methyl Violet	Fugitive	Poor	Good	Poor	Poor	Poor
Methyl Violet (Perm)	Good	Good	Excellent	Fair	Excellent	Excellent
Alizarine Purple	Fair	Poor	Poor	Excellent	Poor	Poor
Phthalocyanine Blue	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Phthalocyanine Green	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent

* International Printing Ink Corp.

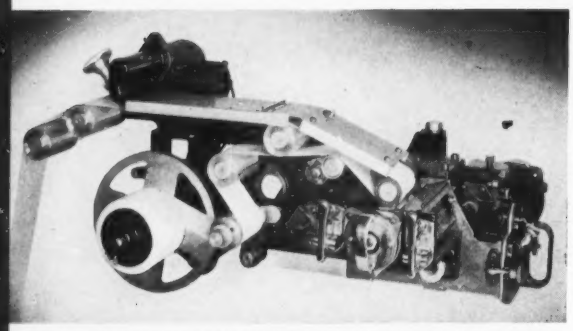
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THE WEISS SPEEDRY PRESS

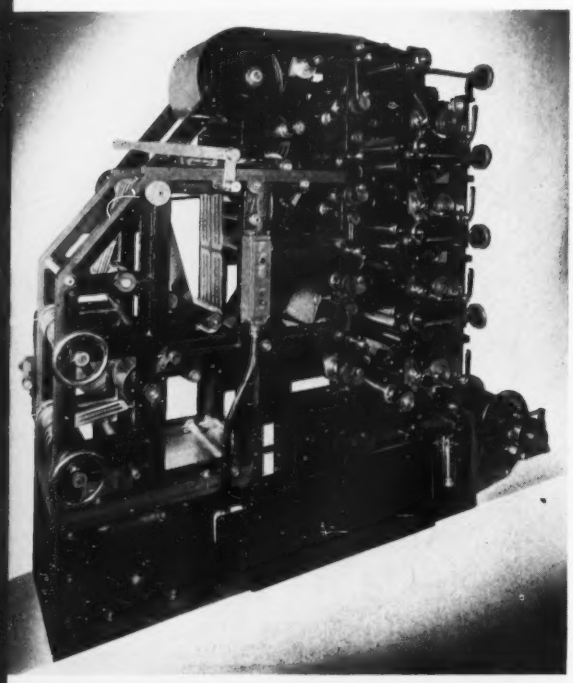
AN IMPORTANT INNOVATION IN ROTOGRAVURE PRINTING

NEVER BEFORE SUCH SPEED, FAST DRYING, AND CLOSE REGISTER AS NOW ACHIEVED BY THE WEISS ENCLOSED-FOUNTAIN PRESS!

Only with the WEISS SPEEDRY ENCLOSED-FOUNTAIN are these great advantages possible:



THIS IS A COMPLETE WEISS SPEEDRY UNIT—WITH ENCLOSED FOUNTAIN. A printing plant in itself, which prints 3" width web . . . yet occupies only 24" length, 20" width, 12" height!



THIS IS A TYPICAL WEISS SPEEDRY 4-COLOR ROTOGRAVURE PRESS, with standard auxiliary mechanisms such as slitting, rewinding, sheet cutting, stacking, punching, die-cutting . . . all assembled on a single base. Overall Dimensions: 7 ft. long, 6 ft. high, 2½ ft. wide.

1. **HIGHER PRINTING SPEEDS** because faster drying inks than ever before are practicable! Only the WEISS patented Enclosed-Fountain permits the use of such extremely volatile inks.

2. **CLOSER PRINTING REGISTER** is possible because the fast-drying inks permit the use of short drying leads. No electric eye is necessary.

3. **SPACE ECONOMY** is achieved by **VERTICAL MOUNTING.** The brief drying leads make for a remarkably compact unit. Additional color units may be mounted one-above-the-other.

4. **QUICK STARTING** after interruptions of press. The Enclosed-Fountain prevents drying of ink on the cylinder . . . eliminates clean-up jobs.

5. **COLOR UNIFORMITY** is maintained. The Enclosed-Fountain prevents evaporation of the ink solvent, and sustains an even body consistency. Frequent reconditioning of the ink is eliminated.

EACH WEISS SPEEDRY UNIT IS A COMPLETE PRINTING PLANT IN ITSELF!

WEISS SPEEDRY units afford a wide flexibility. One or two units may be purchased at first. If additional colors are desired later more units may be readily mounted above the others. The investment in printing equipment can thus be kept within year to year requirements.

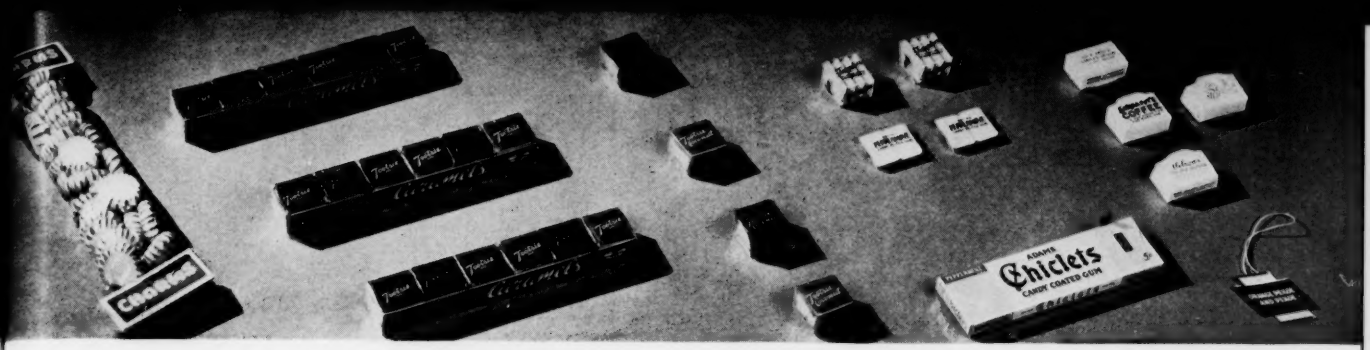
No previous printing experience is required. WEISS units are designed for operation and maintenance by attendants of normal skill. WEISS SPEEDRY units . . . without change of mechanism . . . are equally adaptable for fine printing on paper, cellophane, glassines, foil, light board, diafane, pliofilm and various textiles.

Six standard vertically mounted models are available. Their capacities range from 2" to 12" web width. Other horizontally mounted standard WEISS SPEEDRY gravure printing units accommodating webs 12" to 72" wide are also available.

Each unit is machined and assembled to interchangeable dimensions. Duplicate parts are always available if needed.

A. WEISS

132 W. 22nd STREET, NEW YORK



WEISS SPEEDRY UNITS are being used by:

Dennison Mfg. Co., Commercial Printers and Converters
P. L. Andrews Corp., Envelope Mfrs. and Converters
National Sugar Refining Co., "Jack Frost" Sugars
Charms Co., Confectioners
Ever-Ready Label Corp., Label Mfrs. and Converters
Standard Brands, Inc., Quality Foods
American Chicle Co., "Chiclets," "Tempters," Etc.
And many other well known companies.

PRINTING ATTACHMENTS FOR PACKAGING MACHINES

Now you can print and wrap on your automatic machine! WEISS SPEEDRY units can be easily attached *and synchronized* to most any type of packaging equipment. Labels and wraps may be printed and applied to the products in one operation because the inks dry instantaneously, and without odor.

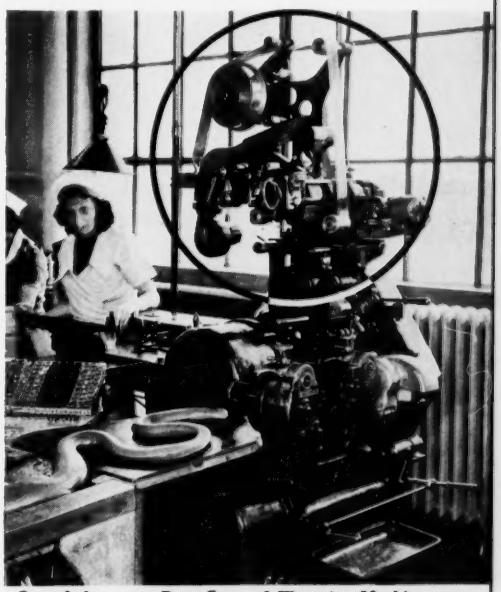
Packaging Machinery manufacturers can attach these WEISS SPEEDRY units to their equipment to meet your specifications. Or, the WEISS units can be readily attached to your present equipment, even though no provision has been made for their addition.

No extra attendant is necessary for the printing operation. The WEISS units operate automatically and are simple to maintain.

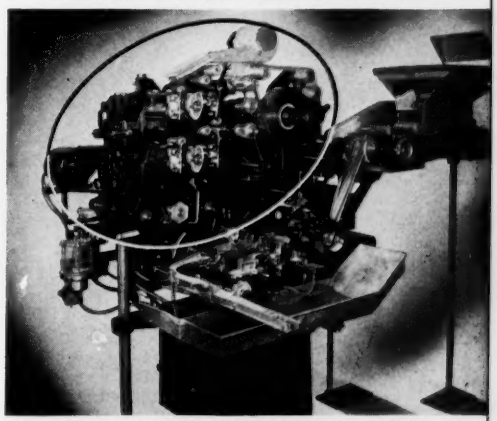
CONVERTERS. Standardized WEISS SPEEDRY rotogravure printing units, in highly diversified models, are available for mounting on *your* converting equipment. They are excellently suited for printing on boxmaking, tag-making, envelope fabricating, tube forming, bag converting, or other special machines.

The units operate at very high speed. A quality of printing is achieved hitherto considered economically impossible . . . and with a minimum of operating skill or attendance.

We will be pleased to discuss your problems with you, and to advise how the WEISS SPEEDRY equipment may be utilized by you.



One of the many Rose Caramel Wrapping Machines to which a WEISS SPEEDRY unit has been attached . . . at the plant of the makers of world famous "Tootsie Rolls." Prints cellophane wrappers for "Tootsie Caramels" at 500 per minute, and feeds directly into the wrapping machine with which it is synchronized. Maintains printed design in register on each panel.



Gum Wrapping Machine, made by Package Machinery Corp., at plant of American Chicle Co. Equipped with WEISS 2-color units, it prints the inside of cellophane wrappers for "Tempters," maintains design register on the panels of the package, and feeds directly into the wrapping machine.

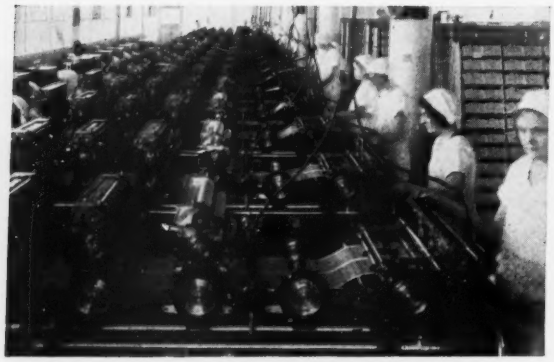
A. WEISS

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PACKAGE PRINTING MACHINERY

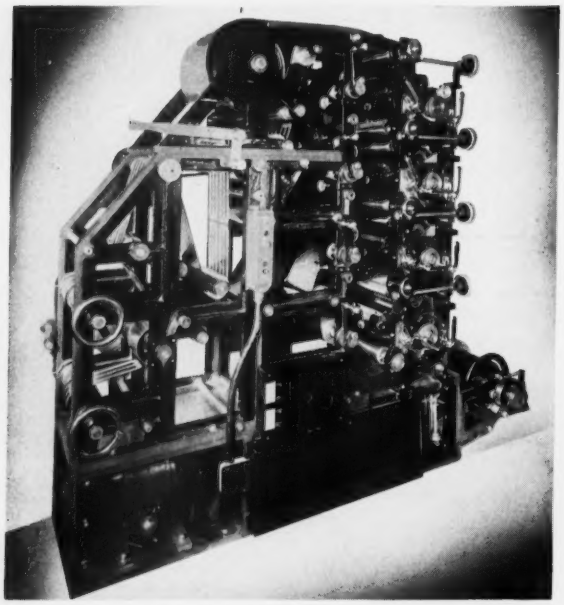
by ALFRED A. MORSE



1. Chambon multi-color presses at food packing plant.



2. Champlain machine printing and fabricating display trays.



3. Weiss four-color press with slitter and spindle re-winder.

Among the outstanding developments in the packaging field during the last few years has been the development of automatic package printing presses designed to produce the finest quality of printing at the lowest possible production costs. Although designed primarily for the production of package printing in million quantities, these automatic presses are sometimes used for shorter runs of repeat jobs.

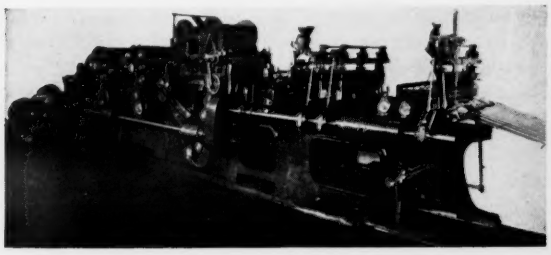
From the production viewpoint, automatic printing presses fall into two general classifications:

(1) Presses in which the paper is fed to the press in sheet form.
(2) Presses in which the paper is fed to the press in web form from a single continuous roll.

The first classification includes presses such as the Claybourn. This is a multi-color, sheet-fed, rotary press available in two sizes and designed to print in from one to five colors. These presses can be started quickly and operated at high speeds. The manufacturers of this press also offer a five-color web label press which prints from the roll and delivers it in web form.

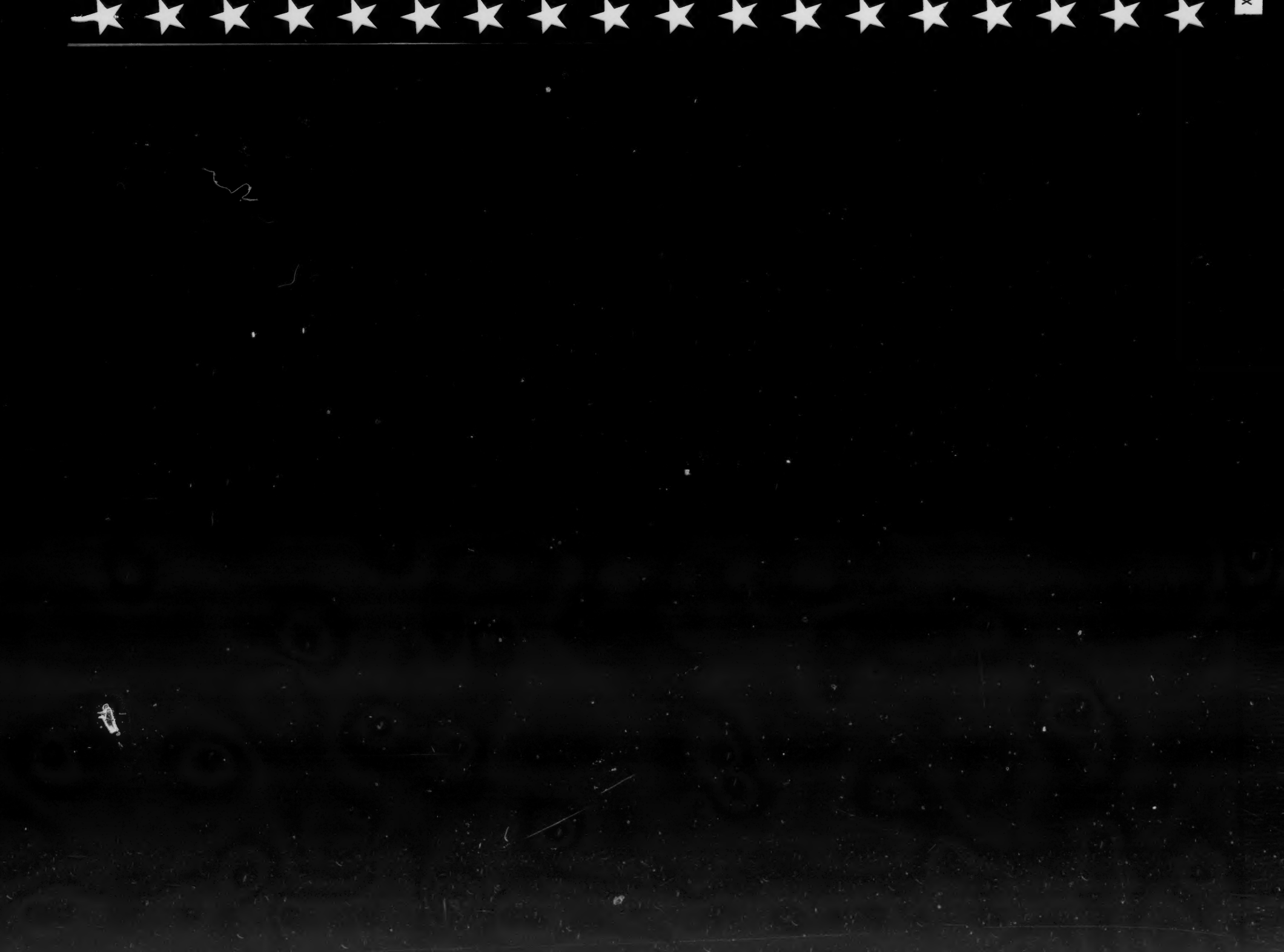
The second classification includes presses such as the New Era press, the Chambon and Champlain printing machines, and the new Champlain gravure press. The New Era press operates with an intermittent motion; the Chambon and Champlain machines operate continuously. With these types the paper is furnished in rolls and travels through the machines in a straight line. Any type of paper up to 25-pt. board may be printed successfully, a feature of particular interest to converters.

The major feature of Chambon and Champlain printing machines of interest to printers is that the same machine can be used to fabricate the printed web and deliver it ready for use in subsequent packaging operations. All printing and fabricating operations are performed by separate units mounted successively on the same base. Machines can be designed to perform such operations as scoring, creasing, embossing, numbering, perforating,



4. New Era printing press.

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An Outstanding Hit

SHOUP OWENS

LAMINATION

SUPERB PERFORMANCE — After the last curtain falls — that all important first night — success or failure depends entirely on first appearance. Your packaging, advertising, and paper problems all must pass this acid test. Insure their success by applying Shoup-Owens lamination. A newly improved process that will give your product the necessary punch in creating superb performance in sales results.

LIGHTNING ACTION — Always in the limelight — Lamination commands attention because of its ability to attract. It gives a clean crisp appearance, bringing out colors in their true brilliancy.

CRITICS APPLAUD — The outstanding features of Shoup-Owens lamination — moisture-proof, soil-proof, dust-proof, peel-proof and wrinkle-proof — smooth glass finish, toughness, freshness of color — acclaimed by the advertising field as truly a headliner.

For posters, displays, folders, folding boxes, set-up boxes and all other advertising and printed matter — **USE LAMINATION** — Inquire today.

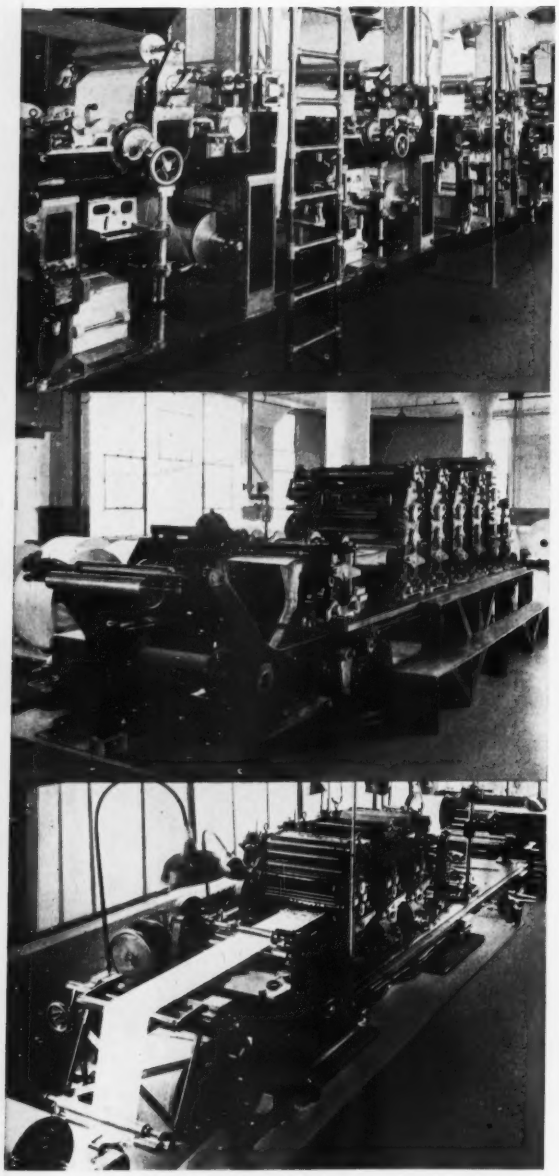
1100 ADAMS ST. **SHOUP-OWENS, Inc.** HOBOKEN, N. J.

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Teel
DENTIFRICE
FOR TEETH
CA 3,990-1
Teel
DEN
Teel
DENTIFRICE
FOR TEETH
the LIQUID way
to SPARKLING TEETH
NOT PASTE—NOT POWDER
NO SOAP—NO ABRASIVE
Cleans Teeth The LIQUID Way
Teel is more than just a new product—it works on an entirely new principle for cleaning teeth, made possible by an amazing new patented cleansing ingredient not available in ordinary tooth-pastes, powders, and liquids containing soap. This ingredient penetrates—cleans in tiny vital crevices between teeth—leaves teeth truly sparkling.
SAFE—Contains no chalk, grit, pumice, or any abrasive whatsoever. Teel cannot scratch or wear away precious tooth enamel.
ECONOMICAL—Easy to use—pour only a few drops on your brush—no waste or mess. Wonderful for dental plates, too.
This carton made by
RICHARDSON TAYLOR-GLOBE CORP.
who recommends
HI-GLOSS
OVERPRINT VARNISH
For APPEARANCE—An elastic, lustrous finish that enhances any printing job. . . . Paste flaps free for gluing. . . . It is highly transparent and non-penetrating on quality coated boxboards.
For PROTECTION—Will not crack with scoring, folding, or embossing. . . . Resists all rough treatment.
CHAFING
WATER
ALCOHOL
SOAP
ALKALI
GREASE
For WORKABILITY—Runs on type and litho presses like an ink. . . . The most economical protective coating.
HI GLOSS (Reg. U. S. Pat. Office) OVERPRINT VARNISH is standard in the trade and is made only by
POPE & GRAY, Inc.
FINE PRINTING AND LITHOGRAPHIC INKS
95 MORTON ST., NEW YORK CITY

XUM

FOR EVERY TYPE OF P



(Top to Bottom) A Type P-26 Champlain 5-Color Gravure Press for producing labels. A Chambon Type 2G-24 5-Color Carton Press. A Chambon Type 3G-17 Multicolor Bag Printing Press.

LABELS

of the highest quality are being produced at lowest cost on CHAMBON-CHAMPLAIN Gravure and Letterpress Printing Machines. The printed web may be rewound or the same machine will fabricate the printed web and deliver the labels cut to size and ready for use in subsequent packaging operations. Producers of labels in large quantities should consider the advantages of roll-fed printing for their requirements.

CARTONS

lend themselves perfectly for production on CHAMBON-CHAMPLAIN machines. You can print on any kind of board up to 25-pt. in the roll, rewinding the printed web or die-cutting it on the same machine and delivering the carton blank ready for use. The CHAMPLAIN Gravure Press makes it possible to reproduce the finest quality of multicolor printing on rough board. It will handle forms as large as 42″ x 40″ and as small as 10″ x 12″ and almost any size between these dimensions.

BAGS

are being printed on CHAMBON-CHAMPLAIN Bag Printing Machines by most of the leading bag manufacturers. The printed web, in roll form, can be used in bag forming machines equipped with the CHAMPLAIN Photoelectric Cell Register Control.

WRAPPERS

may be printed from the roll, reproducing the most detailed designs at web speeds of 350 to 500 feet per minute, rewinding the printed web in the correct width for use in wrapping machines or sheeting it as desired. The CHAMPLAIN Gravure Press is ideally suited for printing on tissue, glassine, parchment, foil, etc., in the roll.

CHAMBON

F PACKAGE PRINTING

ENGINEERING DATA

Name	Model No.	Type of Printing	Type of Feed	Max. Web Width	Max. Printing Width	Min. Cylinder Circumference	Max. Cylinder Circumference	Rate of Production of *Fabricating Operations		
								Rewinding Ft. per min.	Sheeting Sheets per min.	Punching Strokes per min.
Chambon	1-G	Letter-press	Roll	17"	16 /2"	8"	16"	300	200	125
Chambon	2-G	Letter-press	Roll	24"	23 1/2"	15"	31"	450	200	125
Chambon	3-G	Letter-press	Roll	(17"–20")	16 1/2" or 19 1/2"	15 1/2"	26"	300	200	125
Chambon	IC	Letter-press	Roll	14"	13 3/4"	9 1/2"	14"	150	150	100
Chambon	A	Letter-press	Roll	35"	32"			450	200	125
Champlain	P-26	Roto-Gravure	Roll	26 1/2"	26"	15"	35"	600	250	...
Champlain	P-31	Roto-Gravure	Roll	31 1/2"	31"	15"	35"	600	250	...

* Chambon and Champlain presses may be equipped with various fabricating units such as: Perforators, Rotary Cutters, Slitters, Thermoplastic or Solvent Adhesive Applicators, Gloss Applying Units, Multiple Spindle Rewinds, etc.

SPECIALTIES

such as fancy and decorative papers, wallpapers, magazine covers, paper containers, etc., are ideally suited for production on CHAMBON-CHAMPLAIN machines. They will not only produce high quality printing but also perform, on the same machine, such fabricating operations as slitting, sheeting, punching, numbering, perforating, etc., delivering the finished piece ready for use. The machines may be designed for spot varnishing and the application of thermoplastics.

CHAMBON CORPORATION

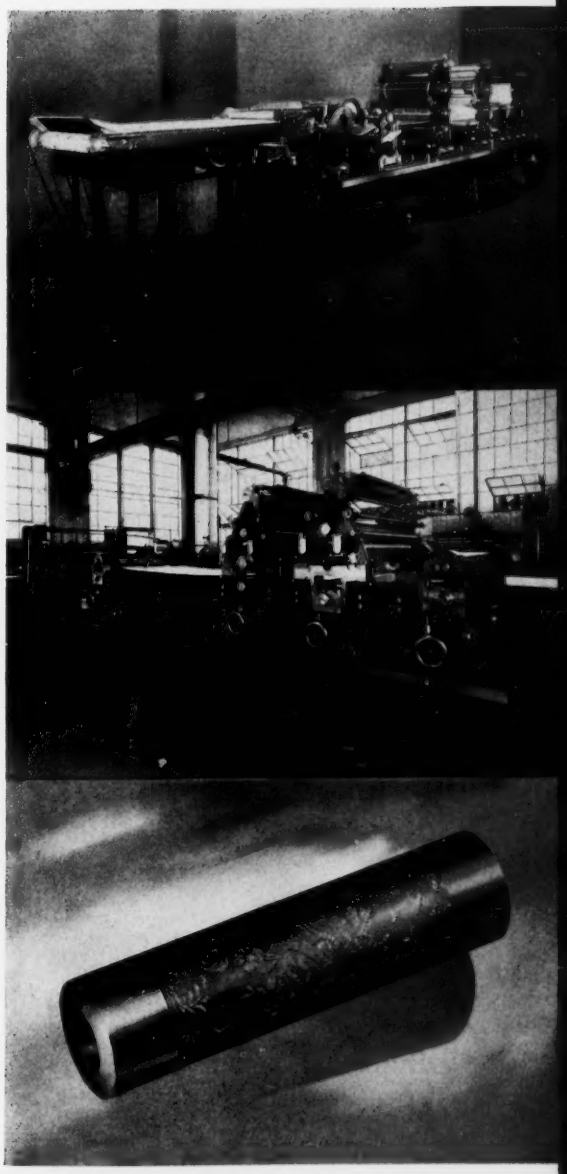
GARFIELD **NEW JERSEY**

PERFECT CIRCLE PLATES

for use on CHAMBON-CHAMPLAIN machines are produced entirely in our own engraving plant which is maintained for the use of our customers. The facilities of this plant are available to every user of cylindrical printing plates.

WRITE FOR DETAILS

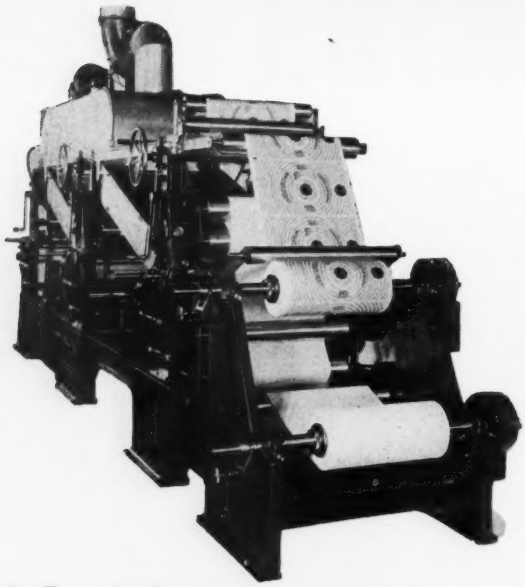
covering a CHAMBON-CHAMPLAIN Printing Machine suited to your requirements. Send, if possible, samples and full production data when requesting quotations.



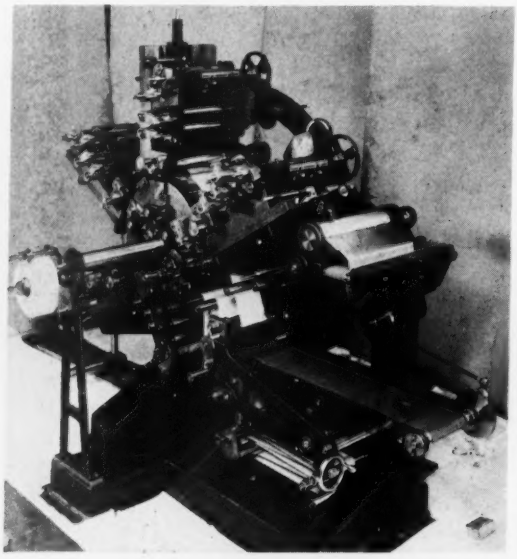
(Top to Bottom) A Chambon Type 3G-17 Multicolor Wrapper Press. A Chambon Type A Combination Printing and Adhesive Applying Machine. A "Perfect Circle Plate" for gravure printing.

CHAMPLAIN

XUM



5. Three-color Hyroto rotogravure printing press.



6 Meisel multi-color web printing press.

slitting, and rewinding, sheeting, dyeing out to shape, coating, spot varnishing, etc.

These machines are designed to print widths up to 32 in. and to run at speeds up to 350 feet per minute. A machine of this type, producing a carton once across the web, is a very economical unit where the production runs into millions. Plates sometimes last more than 500,000,000 impressions. Engravings, furnished to order by the manufacturers of the machine, are solid, chrome-plated bronze shells. Curved electros, stereos, and even rubber plates are being used on this type of press with success, provided the designs are not complicated. For background or solid colors a dry offset unit can be substituted for one of the typographic units, resulting in a better lay of ink and economy in its use. The addition of a Selas burner at one end of the press permits the use of quick-drying Vaporin inks.

The newer gravure presses are capable of delivering a form as large as 42 in. by 40 in. and as small as 10 in. by 12 in. and almost any size between these dimensions. Extremely flexible in operation, they permit the printer to change four colors and different circumference size in as little as one or two hours.

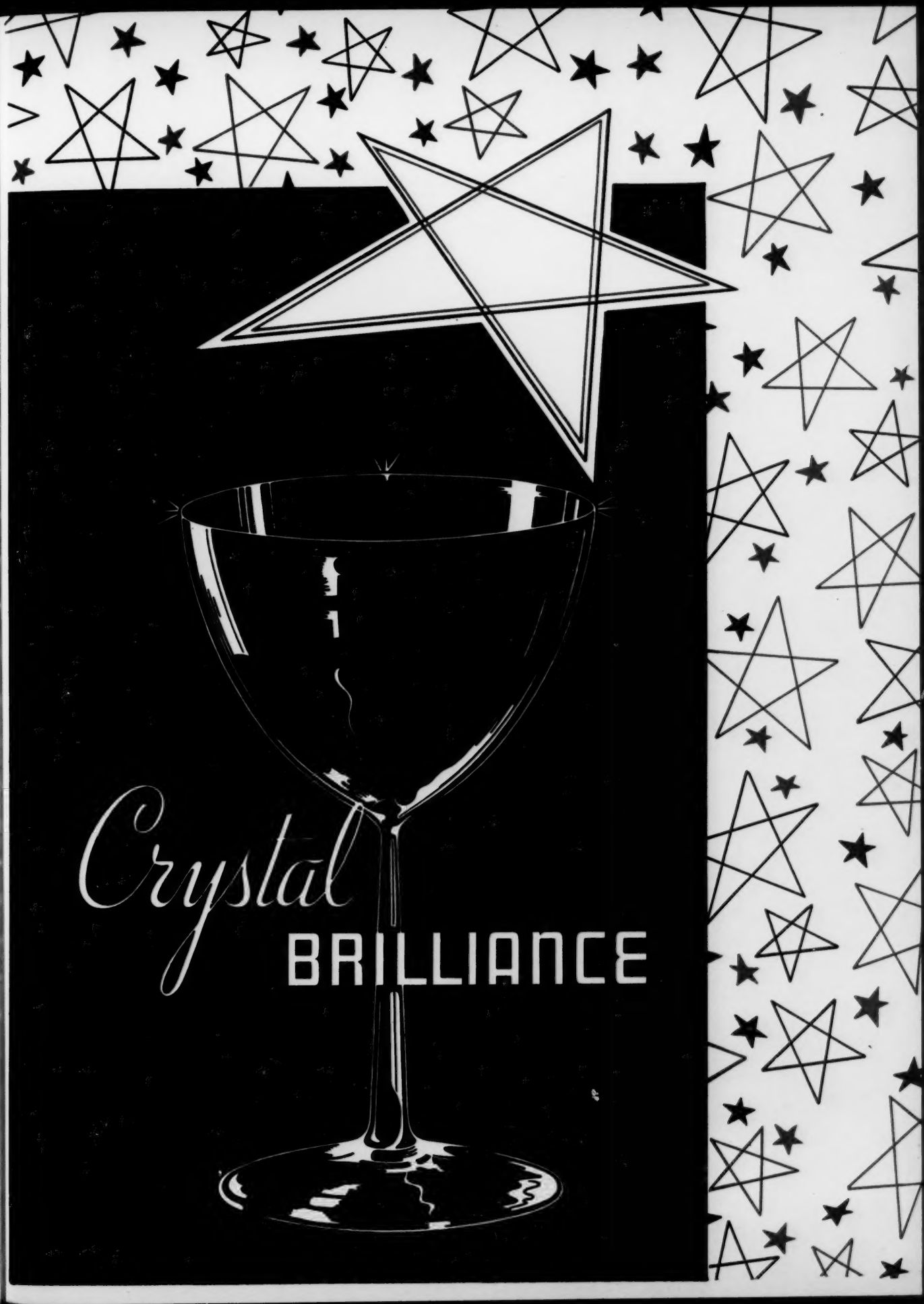
The introduction of these presses has brought to the producer of package printing all the advantages of fine process printing with the economy of high speed gravure printing. The detail of a 150-line screen engraving can be obtained on rough board; the pressure used virtually plates or irons the board or paper into the engraving so that every detail is obtained as easily as from a coarse line cut in letter press printing. Major features of these presses are the method of ink application to the gravure printing cylinder and the high ratio of live to dead web.

Chambon and Champlain printing machines may be equipped with a Photo-Electric Register Indicating device for the control of longitudinal register, cutters, punchers, and perforators.

Automatic printing machines such as described are ideally suited for the production of labels, cartons, bags, containers, bread wraps, printed foil, decorative and fancy papers, tea tags, magazine covers, enclosures, etc.



7. Battery of Chambon presses at plant of paper container manufacturer. Printing and cutting of container blanks are performed automatically and completely on these machines.


Crystal
BRILLIANCE

Beauty OF PAPER AND PRINTING MADE ETERNALLY SAFE AGAINST WATER, OIL, GREASE, ALCOHOL, DUST, DIRT, FINGER MARKS, SCUFFING AND CRACKING . . . WITH . . .

★ "DOPLEX"

Registered United States Patent Office

INVISIBLE ARMOR PLATE FOR PRINTED MATTER

THE finish on the reverse side of this page is "Doplex," the highest glorification, the best protection, you can give your printed matter. ★ "Doplex" intensifies beauty of paper and inks, lends verve and brilliance to blacks, whites and colors. Its sheen catches the eye, its silken-smooth surface is a delight to the fingers of all who handle it. ★ And "Doplex" is diamond-hard resistant to every destructive element that printed matter ordinarily meets. By locking your printed matter behind glass, you couldn't protect it better than with "Doplex." ★ Send us samples of your own selection for "Doplexing" free of charge. ★ Ask for our descriptive folder, quotations and other information.

Uses for "DOPLEX"

Cosmetic Box Coverings, Labels, Catalog Covers, Menus, Sample Book Covers, Booklet Covers, Charts, Posters, Book Casings, Shelf Tabs, Displays, House Organ Covers, Sales Manuals, Sales Portfolios, Point-of-Sale Advertising, etc., etc.

★ OTHER DOBECKMUN PRODUCTS — "Cellophane" Plain and Printed Satchel Bottom, Square and Flat Bags, Die-Cut Hosiery Envelopes; "Cellophane" Pouches for Cigars, Confectionery, Novelties, etc.; "Cellophane" Flower Conservettes; Printed Roll and Sheet "Cellophane"; "Doplex" Display Papers and Fabrics; "Doplex Brilliant" Box Cover Papers; "Dura-Glo" Hammermill Cover; Narrow Slit Films; Electrical Papers; Opening Tab Materials.

THE DOBECKMUN COMPANY

MONROE AVENUE AT FULTON ROAD - - CLEVELAND, OHIO

ANILINE PROCESS PRINTING PRESSES

Stack Type

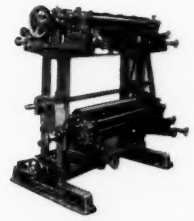
Presses constructed with tympan roll for individual color sections

H-S MACHINE CO.

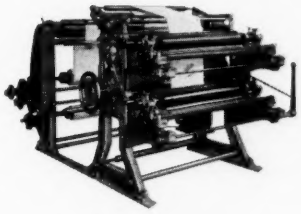
Arc Type

Constructed with all color sections built around single tympan roll

A complete press for every purpose



Small press constructed for use with bag machines or for small roll to roll work



Roll to roll press or for use with sheeting unit. For labels, wraps and similar uses

Aniline printing Presses from Hudson-Sharp have all of the sturdy construction, fool proof design and excellent workmanship that has characterized converting machines constructed by this company over a fifty year period.

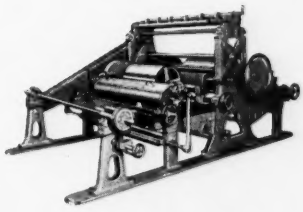
Intimate knowledge of paper converting problems has enabled us to offer presses that ideally fit converter problems.

Presses now in use that have been constructed by range from ten inch units printing shirt envelopes, up to a press 105 inches wide used in tinting and overprinting box boards.

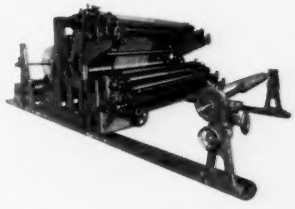
Our interest in a client does not end with his purchase of a press but continues after the press in installed and operating.

We are prepared to meet your press requirements, either with a standard machine or one particularly fitted to meet your peculiar printing problems.

Write for circulars and general information



Large press to be used for roll to roll printing or for use in garment bag or similar machines



Tinter and printer for use in tinting and printing box boards and heavy papers. Also constructed for sheet printing

Hudson-Sharp Wrapping Machines

Hudson-Sharp wrapping machines are covering many different wrapping assignments not previously cared for.

Hudson-Sharp Machine Co.

Green Bay -- Wisconsin

XUM

COATING, LAMINATING AND EMBOSSING

by FRANK W. EGAN*

The four horsemen of converting are coating, laminating, printing and embossing operations. They are the main factors. In the manufacture of labels, wraps, covers, catalogs, inserts, containers and boxes, they play an important part. Today, more than ever, there is a demand for special machines for these four operations. New ideas have been the origin of this equipment.

Coating

There are two types of coating—one is protective and the other is decorative. The protective type includes coating of paper to protect its surface and the coating of paper to protect its contents where it is used as a wrapper.

Decorative includes coating paper where it is used for printing or where it depends upon a high gloss to give it a special finish.

There are various types of coating machines, such as brush, roll, knife and spray, and each of them have their own advantages. The type of coating that is used will determine the kind of coating machine that will best apply the coating, i.e., the coating may be of either low or high viscosity and it may have a high or low surface tension. Coatings that have a tendency to brush mark can be applied more readily on a roll or knife coater. Some coatings have a tendency to rib. In this case, they can be handled on a roll coater, for ribbing generally means that the coating has a high surface tension. Such coatings are better run in high viscosities on a knife coater. A spray coater can be used to advantage on rough surfaces, but its weakness is that it is wasteful and has a tendency to dry the coating during the spraying operation, leaving an orange peel effect.

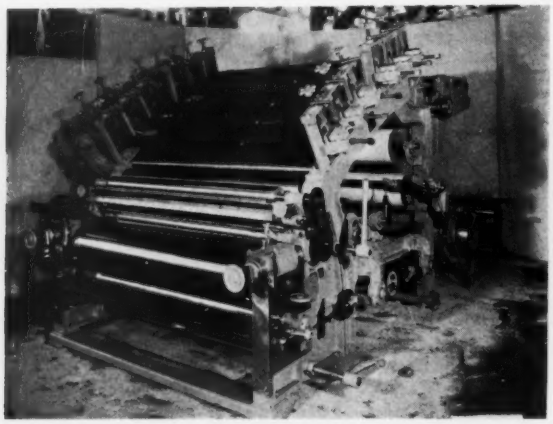
Clay-coating, today, is still used to produce the best printed effects, for it has been found that minerals present a fine surface for printing inks to obtain the best possible printed effect.

For the application of lacquer, a roll or knife coater is used. The roll coater will apply a coating that can be applied on a brush coater, that is, a coating having the same viscosity, but the knife coater will apply lacquers having a solid content of 70 to 80 per cent. This proves a great saving in solvent and reduces the fire hazard to a minimum. Both clear and metallic, as well as pigmented lacquers, can be applied on the knife coater, but the knife coater has to be of a special type. It cannot be of the old fashioned arrangement, where no blanket and no specially ground doctor with controls is utilized.

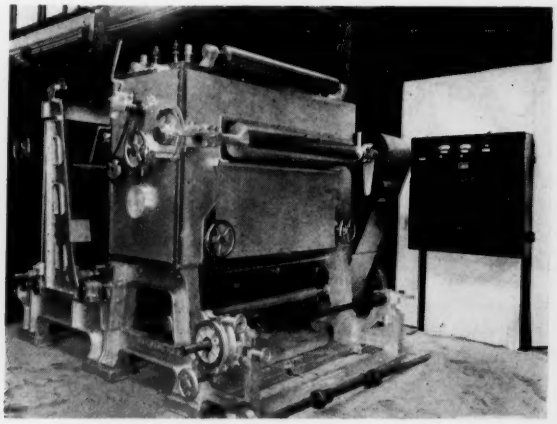
Of late, there has been some tendency to coat paper by printing it, but this has not been successful for the reason that to obtain good coated surfaces the coating must have flowability, and this characteristic is just the opposite of what the coating should be to be printed.

The popularity of lacquer coated papers has created a demand for a lacquer that is solventless and does not prove a fire hazard. Such a lacquer has been produced. The lacquer comes in a solid form and has a melting point of around 180 deg. and is best applied at a temperature of around 300 deg. With these melting and applying temperatures, blocking is eliminated and you can apply the lacquer to the paper surface at a speed of from 200 to 300 ft. per minute. The machine for applying this lacquer, necessarily, must be a precision machine, for one ten thousandth of an inch setting on the application rolls applies a pound of lacquer to a ream of 25 by 38—500 basis. The rolls have to be large in diameter, accurately ground and special arrangements made to heat the rolls and keep this heat uniform across the face, so that the roll maintains an accurate diameter.

* John Waldron Corp.



1. Combination roll and brush coater for clay coatings. Photos courtesy John Waldron Corp.



2. Hot melt coater used for the application of lacquers or resins that have a solid nature.

XUM

XUM

XUM



"PACKED" WITH GLAMOUR

A cosmetic product for instance...

What contains more glamour for the fair sex, at least? But any package may truly be "packed" with glamour by adding to its attractiveness or eye-appeal . . . All types of cartons and tight-wrapped containers, as well as labels, displays and printed matter of all kinds, are definitely improved when treated with a gleaming coat of EGYPTIAN PAPER LACQUER, a water-white, crystal-clear finish. Not only does this greatly enhance the appearance of the surface to which it is applied, but, also, because of its durable nature, it preserves its factory freshness . . . EGYPTIAN PAPER LACQUER is non-scuffing and impervious to the many elements which are so detrimental to ordinary finishes . . . We extend a cordial invitation to interested packers to write us for further details and information.

EGYPTIAN PAPER LACQUERS are furnished in a variety of standard formulations . . . Gloss, Super-Gloss, Moisture-Resistant, Alcohol and Alkali-Resistant, Grease-Resistant, and Thermoplastic. In addition to these lacquers, we are prepared to furnish special materials for individual requirements.

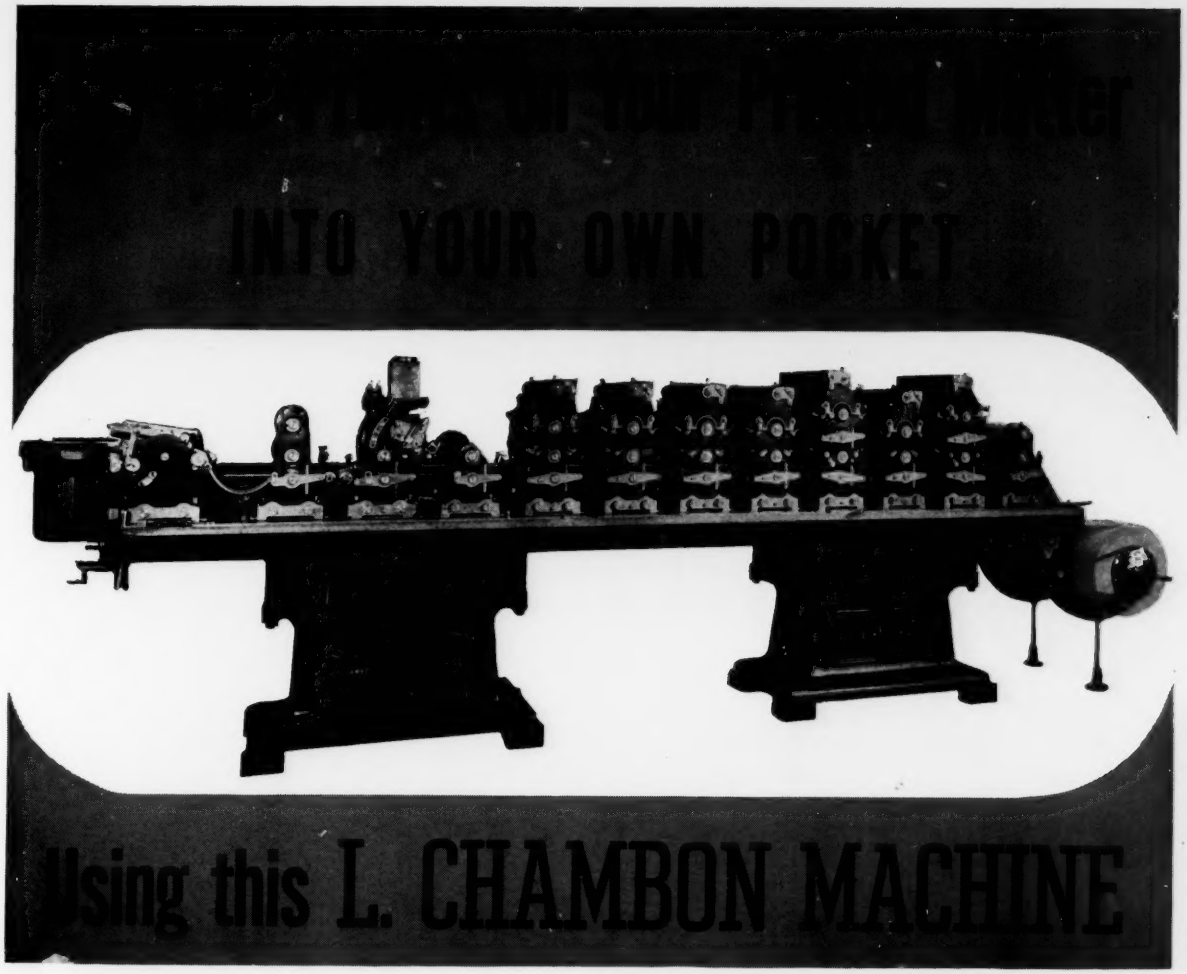
THE EGYPTIAN LACQUER MANUFACTURING COMPANY
ROCKEFELLER CENTER, NEW YORK, N. Y.

EGYPTIAN LACQUER

This insert is treated with one coat of EGYPTIAN PAPER LACQUER applied by roller-coating machine.

L. H. Butcher

XUM



Let us demonstrate how economically an L. Chambon press can print your own labels, wraps, cartons, seals, and tickets, etc.

The L. Chambon press operates with such low costs, and saves in so many other various ways—in eliminating delays and hold-ups, by cutting out middlemen as your sources of supply, by eliminating the need for stock quantities of labels, seals, etc—that within a short period of time, it more than pays back its initial cost.

All operations are performed simultaneously in a single assembly—prints from rolls in one or five or more colors—letterpress, dry offset, aniline, rotogravure, or combinations of these methods.

Machine can be equipped for varnishing, printing face and back, . . . also for creasing, embossing, perforating, scoring, die-cutting, etc.

Actually a series of simple units, lined up on a single base, geared to a single power source, working on a single web of paper or board (from cellophane to 35 point board). The resulting perfection of workmanship and speed of operation guarantees a better product at far lower than customary costs.

Write for details, and an analysis of your requirements.

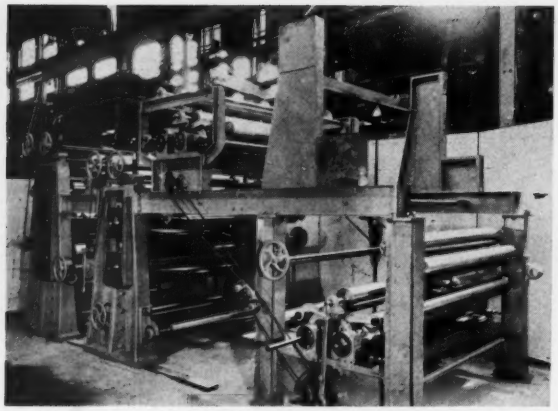
L. C. MACHINERY CO., Inc.

460 West 34th Street NEW YORK CITY

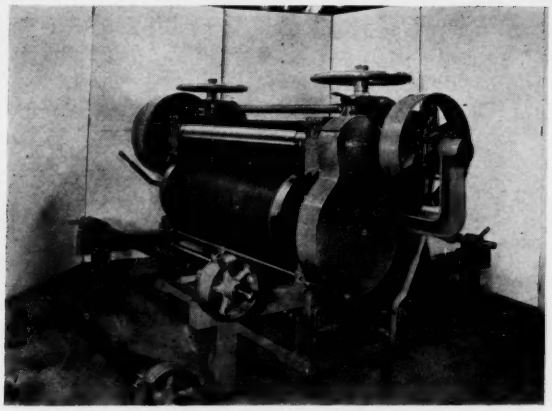
MEDALLION 3-5383

American Affiliate of L. Chambon, Paris Chambon, Ltd., London

XUM



3. Laminating machine for combining three, four and five plies at a speed of 400 ft. per minute.



4. Open front embossing machine of the web type. Photos courtesy John Waldron Corp.

Manufacturers are producing hot melt lacquers and resins which produce high gloss, moisture-proofness, some oil-proofness and which have other advantages. The art is new, but it is progressing rapidly.

Combining

Combined stock presents a product that cannot be made on a paper or board machine. For instance, you can combine glassine, book, coated paper, cellophane or Pliofilm to paper or board, using starch, silicate, asphalt, lacquer or hot melt adhesive. The combining operation also permits the manufacturer to produce a heavy caliper board which has rigidity.

Not many years ago, combining machines were used which required a heavy coating of paste, making it necessary to pass the combined web around steam dryers.

It has been found that paste can be run having a solid content of 45 to 50 per cent, and 1 to $1^1/_2$ lbs. of paste can be applied per 1000 sq. ft., instead of 3 to 4 lbs., and the bond may be made in a single nip. In applying the paste in this fashion, no dryers are required. This has a particular advantage in that the combined web is not carried around a dryer, thereby flexing the board and lessening the rigid character that is often required in a combined web. The combined web is taken directly from the combining machine to a sheeter cutter.

The more simple the combining machine is, the better the product obtained will be, for in any operation the operator must have ready access to all parts and be able to lift the web from the paste rig during a short shut-down period to make splices.

Foil, both aluminum and tin, as well as cloth are used a great deal today in combining to board and paper. Foil is handled readily on these units, but requires special unroll and tension features. Cloth is handled without pressure in the combining machine as it is simply run "S" fashion.

Asphalt is being used to a great extent today as an adhesive. It makes a good bond and, at the same time, gives a protective coating of a moisture-proof nature. Its only disadvantage is its color. On some light-weight papers, it has a tendency to show through the stock. For this reason, the hot melt resins are being used to a great extent, for they provide a moisture-proof film between the webs which are combined and they have all the advantages of asphalt.

Laminating cellophane or Pliofilm to paper or board requires special equipment, as both of these films are moisture-proof (where moisture-proof cellophane is used). The solvent has to be removed from the adhesive before the bond is made, otherwise blisters form.

Where the combined product is not sheeted in tandem with the combining machine and is re-wound, it is well to use as large cores as possible and not leave the combined product on the cores any length of time so that the combined web takes a set, in which case a decided curl would result. It is the best practice to sheet the combined product in tandem.

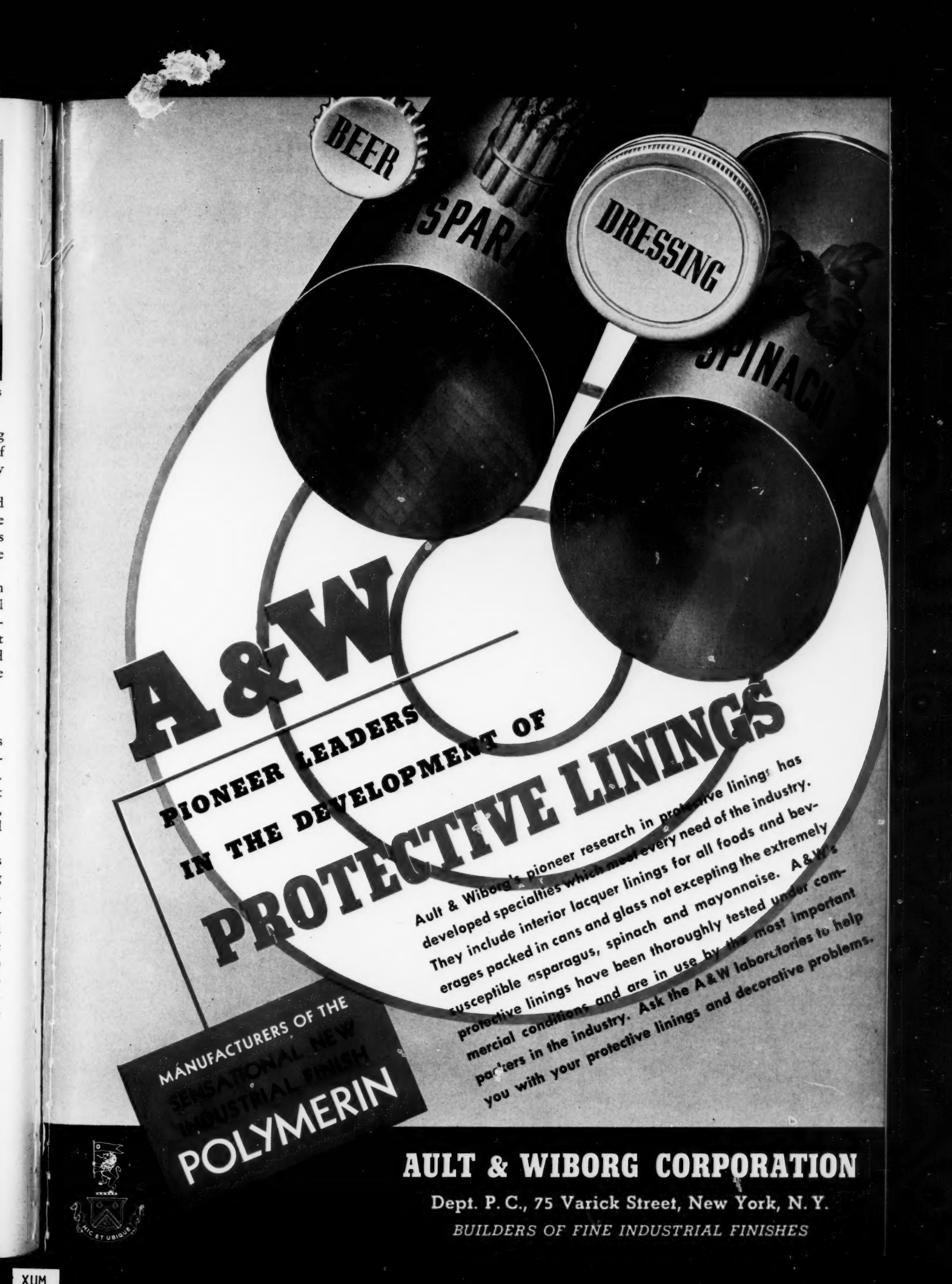
Embossing

The final effects needed to soften the printed results and produce depth are supplied by the embossing operation which enriches the label, catalog or cover stock. This embossing may be male and female, or a flat back design. Flat back has a tendency to produce sheen for, as a general rule, fine designs that produce two-toned effects are used.

Where webs are to be combined, it is best to emboss the cover paper and then combine it, for the combining operation takes away a great deal of the embossed effect. For producing the best embossed results, the steel engraved roll should be bored for steam. Usually the steel roll is in the top position and driven directly from the main drive shaft. The paper impression roll is geared to the steel engraved roll. Individual vertical adjustments are used and a quick release is part of the machine. Pressures can be maintained with screws, or through a weighted lever device.

For colored effects, inking attachments are mounted on the embossing machine and the ink laid in the low spots of the embossing, or it is kissed on the high spots for shadow effects; or a combination of the two.

Embossing has a semi-breaking action on the fiber stocks of paper. Therefore, where strength is required an embossing operation would not be recommended.


BEER
DRESSING
SPINACH
A&W
PIONEER LEADERS
IN THE DEVELOPMENT OF
PROTECTIVE LININGS
Ault & Wiborg's pioneer research in protective linings has developed specialties which meet every need of the industry. They include interior lacquer linings for all foods and beverages packed in cans and glass not excepting the extremely susceptible asparagus, spinach and mayonnaise. A&W's protective linings have been thoroughly tested under commercial conditions and are in use by the most important packers in the industry. Ask the A&W laboratories to help you with your protective linings and decorative problems.
MANUFACTURERS OF THE
SENSATIONAL NEW
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BUILDERS OF FINE INDUSTRIAL FINISHES

ROLL LEAF STAMPING AND EMBOSSING

by ALFRED A. MORSE

Roll leaf stamping and embossing is a process by which gold or colored foil is transferred onto and into the surface of paper, wood, plastics, leather, etc., for decorative and identification purposes. The roll leaf process lends itself particularly well to the decoration of high grade paper and fabric-covered box tops, plastic containers, tool handles and all articles which are improved by decorating or trade marking.

In the case of box tops and box wraps which are embossed by the roll leaf method, the embossing operation is performed after all the printing has been done. The work is usually done on a platen press of the Thomson-National, Chandler & Price or Brantjen and Kluge type, which is equipped with a roll leaf feeding attachment and a heating plate. A brass die is made for the part of the design to be embossed in roll leaf. This die is a combination stamping and embossing die, designed so that it not only causes the foil to release but also embosses the surface to which it is applied, all in one press operation. The roll of gold bronze or colored foil passes across the face of this heated brass die. With each operation of the press, the foil is transferred from the paper web to the box wrap surface unused foil passing off as waste.

The roll leaf process is unique in that it eliminates entirely the operations of sizing and bronzing. In one operation, it applies the foil and embosses the design into the surface of the paper.

Set-up boxes and plastic containers are usually stamped in a different type of press than that referred to above. One of the manufacturers of roll leaf has developed a complete line of presses to cover almost every stamping requirement from the stamping of small paper articles to display cards and greeting cards, up to heavy articles such as shovel handles.

The marking or decorating of plastic articles offers still another problem, because of the nature of the material being stamped. Special presses have been developed for this purpose and the use of steel dies and high pressures allows the stamping of very hard materials with satisfactory results. This roll leaf process has already been applied to the stamping of plastic closures.

In the case of tool handles, the roll leaf "label" has greater permanence and more durability than the average paper label or decalcomania and is, of course, much more attractive than branding. Excellent results are obtained on tool handles and all wood articles of this nature. The surface of the handle, offering less resistance than a hard plastic surface, allows the die to sink into the wood at the same time that the foil is transferred to the surface. The result is an impression which is as permanent as a brand.

Until recently, the roll leaf process has been limited to the materials mentioned in the first part of this article. However, recent developments show that it is possible to stamp metal surfaces which have been covered with enamel and baked. The development of rotary type presses has made it possible to stamp completely around cylindrical surfaces.

The stamping foil is available in any width up to 24 in. and is supplied in rolls 200 ft. long. In addition to gold and aluminum-bronze foils, there are available a number of metallic and pigment colors and, on special jobs, it is possible to obtain foils to match any color.

In the operation of the various stamping presses, there are several outstanding advantages. The operation of the press does not require any particular skill on the part of the operator. Automatic feeds can be arranged which bring the article to the press and eject the finished and stamped article as desired. There is no drying time required and the finished articles can be packed for shipment immediately after they leave the press, if necessary.



Roll-leaf stamping and embossing applied to packages and display. Photos courtesy of Peerless Roll Leaf Co., Inc.

Packaging Glamour 1939

LAMCOTE★





★LAMCOTE REINFORCED FABRICS

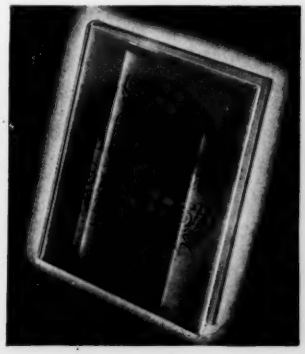
for wrapping and packaging materials make remarkably strong transparent coverings . . . and provide, in addition, extraordinarily rich and colorful effects. Cloak *your* product in such sales-appealing attire!

★LAMCOTE WINDOW CARTONS

do double duty! Their lustrous all-over lamination makes them a pleasure to behold and touch . . . and the LAMCOTE surface makes a *permanent* window thru which to exhibit your product. LAMCOTE will not wrinkle, crack, turn color.

★LAMCOTE BOX WRAPS, CATALOGS, ADVERTISING MATTER

We are specialists in laminating all forms of printed matter . . . adding new measures of protection against grease, dust, handling, etc. . . . *and* enhancing even a mediocre printing job! Inquiries will receive careful, intelligent consideration.





ARVEY CORPORATION

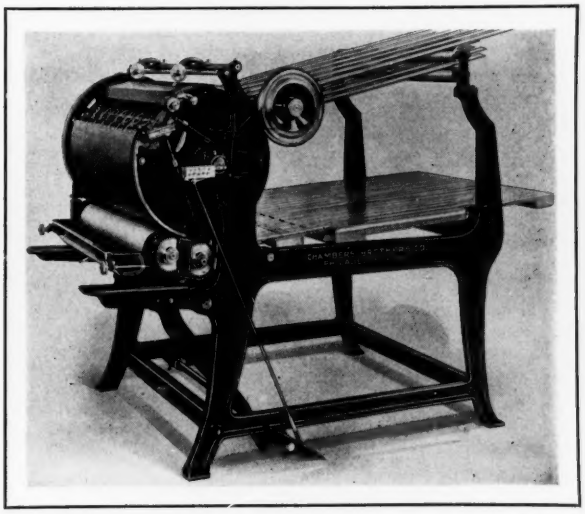
3462 North Kimball Avenue, Chicago, Ill.

CHAMBERS BROTHERS COMPANY, PHILADELPHIA, PA.

SHEET FED COATING MACHINES

with or without Automatic Feeders

The roller method for applying fluid coatings as used in the Chambers Machine has long been recognized for producing satisfactory results. This machine is the standard in its field and is largely used by finishers conveniently located. Some of these firms have several machines in operation and are equipped to give very prompt service.



Standard Pattern Machine Sizes.

All have cylinders of 24 inches diameter.

The width measurement listed is the maximum along gripper edge, or crosswise of machine.

All machines are adjustable for sheets of smaller dimensions.

28″ — 36″ 44″ — 52″ — 60″ — 65″ 70″ — 74″.

The Junior Model

Is built in one size only.
Cylinder 16 inches diameter.
Receives sheets 15 x 20 inches or smaller.

Applicator Rollers

Changes in the standard construction are possible, and are cheerfully considered when necessary for special uses.

Rubber covered rollers are recommended for spirit varnish.

A composition covering in which glue and glycerine are the basic ingredients, is the safest for nitrocellulose lacquers. Tubular metal rollers, preferably of a bronze alloy, are also used to apply some liquids. These rollers are carefully ground and polished. Occasionally we have had them plated with a hard chromium. The ductor roller may be chromium plated at extra cost.

Drying Ovens

Four business concerns located—one in Canada—two in New York, and one in California, have developed Drying Ovens that are successfully used with our machines.

Send us your inquiries.

XUM

TRANSPARENT SURFACE COATINGS

A number of materials are at present coming into increasingly wider use as surface coatings for paper labels, wraps, cartons, etc. These fall into two general groupings known to the layman as lacquers and varnishes. Within each group, however, there are a number of types of material available and new materials, such as rubber derivatives, are hard to classify under either grouping.

The original function for which these materials were developed and applied to packaging was to provide a high gloss finish which would insure greater eye appeal for the package. While this is still an extremely important function in many instances, a number of other functions are met by this group of materials. These include the following:

1. Resistance to dirt and to oil and grease stains, fingerprints, etc.
2. Moisture resistance. Lacquers in particular can be so formulated as to seal paper and cardboard against the penetration of moisture from without or against evaporation from within.
3. Scuff-proofness. Both lacquers and varnishes provide varying degrees of resistance to chafing, scratching and scuffing and hence preserve the original appearance during transit.
4. Bleed resistance. Spirit label varnishes and lacquers prevent moisture derived from the outside or from the interior of the package from causing bleeding of printing or lithography.
5. Alkali resistance. Lacquers in particular are unaffected by mild alkalis and therefore find special application in the packaging of some alkali products. This quality also permits wiping or washing of lacquered packages.

Formulation of Surface Coatings

While a certain degree of standardization in such coatings has taken place, practically all types of lacquers and varnishes should be formulated by the supplier only after a careful study of all of the factors entering into the application and use of the material. Suppliers are prepared to render a great technical aid in this respect and to advise not only on the proper formulation of the lacquer or varnish, but also on the selection of papers, applications, processes, inks, etc.

Spirit Varnishes

Spirit label varnishes are alcohol solutions, usually of manila gum, which dry by the evaporation of the solvent. Other materials are sometimes added. Although basically simple, their exact formulation, processing and application have considerable bearing upon the quality of the coating obtained, its transparency and the amount of gloss. They are applied by running the printed sheets through a varnishing machine where the varnish is rolled over the sheet and dried quickly by passing through an oven. They then continue on a belt for an additional cooling distance before stacking.

Spirit varnish gives a clean, smooth finish over most grades of paper. Under ideal conditions, it is the most brilliant finish available. Care should be taken, particularly during the drying process, to avoid oxidation factors resulting in the presence of objectionable odors. Care must be exercised not to use inks soluble in alcohol on sheets which are to be spirit varnished.

Overprint Varnishes

Overprint varnishes are coming into wider use in the packaging fields. A major advantage they possess is that they may be run on either lithographic presses or letter press equipment. They are clear and transparent, giving an excellent gloss effect over dry ink. Any design required may be printed with varnish so that the paste flaps may be left free of both ink and varnish, a very important advantage for folding boxes and wraps.

Overprint varnish gives a tough, slippery film, a high gloss which is resistant to chafing and scratching and to most other destructive agents. Consisting of an oil base plus rosins, wax and driers, it dries through oxidation and hence requires a considerably longer drying time than spirit varnishes. The usual method of force drying is by open flame gas jets.

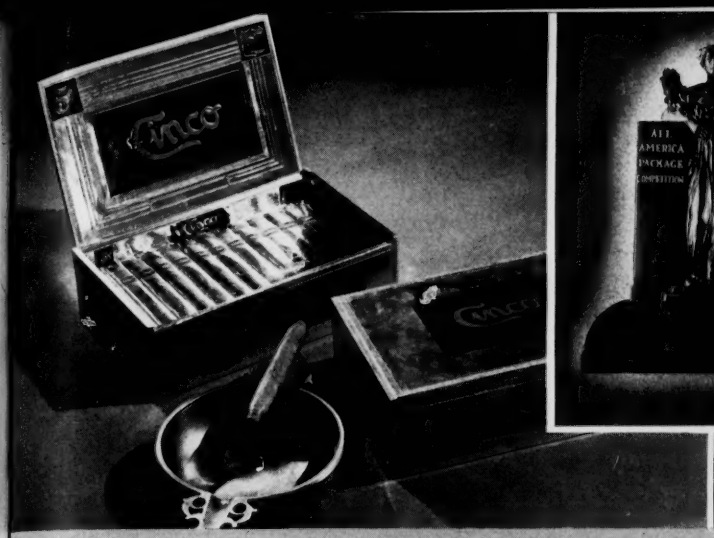
Lacquers

Lacquer, made of cellulose compounds and suitable solvents, is usually applied in much the same manner as spirit varnish. In some cases, it is sprayed rather than rolled on. It dries by evaporation of the solvents.

Lacquering is usually a more expensive process than varnishing, both because of the deposited lacquer and because a heavier film is usually applied. While such broad differences in cost would seem to rule out lacquers for most purposes, this is not, in actual practice, the case. The provision of such qualities as moisture resistance, alkali resistance and grease resistance and the higher resistance which lacquers provide to scratching, chafing and rough treatment frequently makes their use desirable and in a number of instances has permitted of economies on other portions of the package more than compensating for the actual cost of the lacquers.

Thus in some instances, companies formerly utilizing friction sealed metal cans to keep products dry have found it possible to use less expensive paper walled canisters in conjunction with lacquer coated labels.

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■ **BRONZE AWARD, OPAQUE WRAPS:**—Cinco Cigars, product of Webster, Eisenlohr, Inc. By General Lithographic Corp. Foil lacquer by IPI.

■ **GOLD AWARD, SHIPPING CONTAINERS:**—Goodrich garden hose. By Inland Container Corp. using process of Continental Color Corp., IPI subsidiary.

■ **GOLD AWARD, LABELS AND SEALS:**—Wm. Underwood Co. Lithographed can labels by Forbes Lithograph Mfg. Co. using IPI inks.

■ **GOLD AWARD, FOLDING CARTONS:**—Esmond Mills. Blanket box lithographed in colors by National Folding Box Corp. using IPI inks.

■ **GOLD AWARD, COLLAPSIBLE TUBES:**—Designed by IPI for its Everyday Inks line. Lithographed in color with Lithox by White Metal Mfg. Co.







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Lacquers, above all other coated compounds, require the most careful formulation and the most thorough knowledge of conditions to be met in production, processing and use if they are to provide desired qualities.

Lacquer coatings are crystal clear and will not discolor white areas. They will not discolor with age. They are extremely flexible and can be folded, creased or scored without breakage of the film. Absence of residual odors is an important condition, inducing their use on wraps and containers for food products.

Rubber Derivative Coatings

A relatively new type of coating, sometimes considered as a member of the lacquer family, utilizes a rubber derivative material to achieve moisture resistant qualities of a high order.

VINYL RESINS FOR COATING SURFACES

by A. K. DOOLITTLE AND J. R. PRICE*

Vinyl resins, although relative newcomers among the synthetic resinous materials, have already found a place in the food and beverage packaging field, due to the unique properties which they possess that especially adapt them for food package use. These properties include moisture-, grease- and alcohol-resistance; thermoplasticity; non-inflammability; and absence of taste, color, or odor. With co-polymer vinyl, terms such as "resistant to alcohol," "impervious to moisture" and "greaseproof" are more than merely relative terms—they are practically absolute. For example, a vinyl H film is not softened at all on immersion for a week in spirits grade alcohol at 25 deg. C. Moisture transmission at 35 deg. C. is less than one-tenth as great through a vinyl film as it is through a nitrocellulose film and grease has no effect on co-polymer vinyl that can be detected by any of the ordinary methods of test.

Co-polymer vinyl is the term used to describe the vinyl resins manufactured by the conjoint polymerization, or co-polymerization, of vinyl chloride and vinyl acetate. The resin molecules prepared in this way consist of both individual vinyl chloride and individual vinyl acetate molecules joined together in chemical combination. In no sense can the properties of co-polymer vinyl be duplicated by mixing separately polymerized polyvinyl acetate with separately polymerized polyvinyl chloride. The mixture of the two components must take place, step by step, as the large molecules are built up in manufacture. The intermediate materials, vinyl chloride and vinyl acetate, from which co-polymer vinyl is produced, are themselves made synthetically from naturally occurring raw materials such as gas, air and salt.

The vinyl chloride portion of the co-polymer vinyl molecule contributes resistance and toughness, while the vinyl acetate portion permits the resin to be dissolved by the proper solvents and likewise accounts for a certain "internal plasticity" that is very characteristic of these resins. Since no oxidation or other chemical change takes place when vinyl lacquers dry, this film flexibility is retained practically indefinitely.

Co-polymer vinyl is a hard, tough, colorless and transparent resin. It is soluble in several classes of organic solvents, including ketones, esters, and certain chlorinated compounds. These solutions can be greatly diluted with aromatic hydrocarbons such as toluene and xylene, but will not tolerate much aliphatic hydrocarbon (petroleum naphtha). Films made of co-polymer vinyl are resistant to so many agencies that are destructive to the usual surface coating vehicles that they are practically without an equal in this respect. One might say that co-polymer vinyl is as resistant, physically and chemically, as pure Bakelite, as tough as nitrocellulose, as flexible as a modified alkyd, yet colorless, odorless, tasteless and non-toxic. Little wonder that properties such as these should recommend this resin for use in the food packaging field.

Coating Techniques

The materials of which food packages are constructed are many and varied, but two broad classifications might be, namely, metal, such as is used in tin cans, metal foil and closures; and paper or fibrous materials, such as wraps, cartons, pulp and fibre containers, and the like.

Two general methods of applications are in commercial use for coating paper with co-polymer vinyl, namely, solution coating and calender coating. For coating metal, however, the solution coating method is the only practical means so far devised. There are several ways in which the solution coating of paper or of metal may be carried out. For instance, the sheet may be knife coated from a viscous solution; it may be roll coated by either the "wet roll" method or by the "off set roll" method; or, finally, the sheet, or preferably the fabricated container, may be sprayed with, or dipped in, a vinyl lacquer.

In all cases where the vinyl film is deposited from solution, it is necessary to "force dry" or bake the coated stock in order to rid the film of the last trace of the solvents. Co-polymer vinyl is not a heat-hardening resin. Vinyl lacquers dry in the same manner and by the same means as pyroxylin lacquers, but the tendency of the resin to retain residual solvent is greater than is the case with nitrocellulose. For film thicknesses such as are used in connection with the packaging industry, a few

* Plastics Division, Carbide & Carbon Chemicals Corp.

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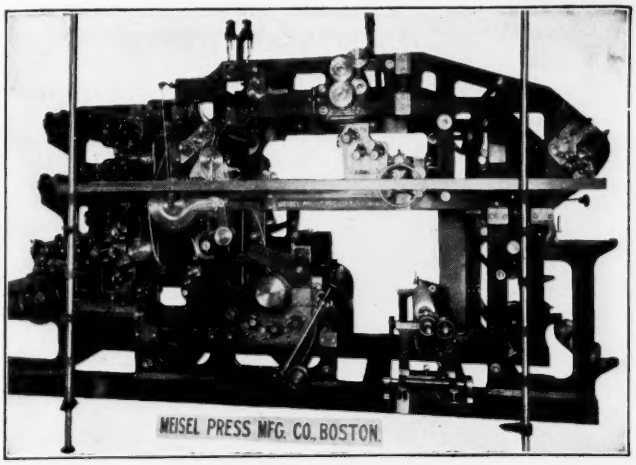
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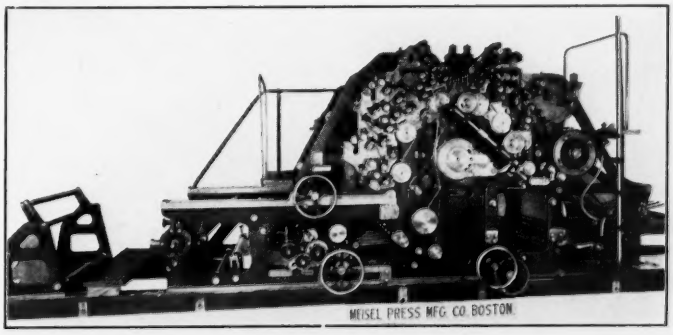
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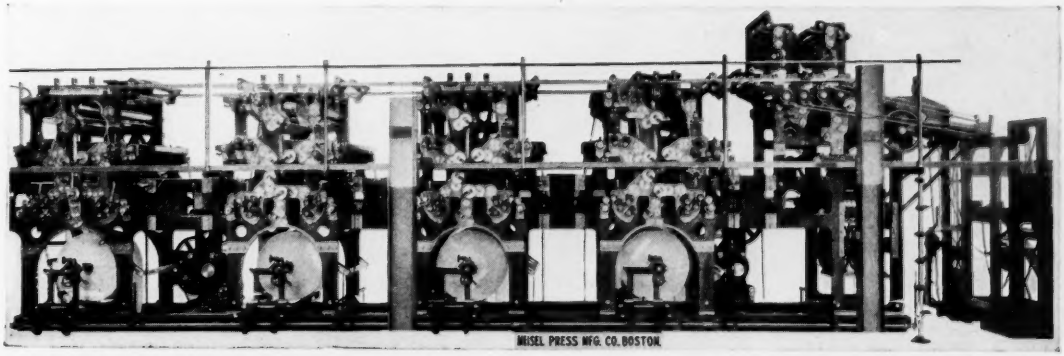


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minutes at 250 to 300 deg F. is usually sufficient, except in those cases where adhesion to metal is required. To gain adequate adhesion to metal with the current grades of co-polymer vinyl, it is usually necessary to attain a baking temperature of 350 deg. F. In such cases, a specially "stabilized" first coater is required to avoid decomposing the resin during exposure to this heat.

The calender coating of paper is accomplished by working the plastic mass into a thin film over heated rolls, then calendering this film continuously onto paper which is fed through the machine at the same rate as the film is formed. Film thicknesses as low as two mils are readily prepared by the calendering method just described.

Applications

The lining of tin cans for packaging beer was never successfully accomplished until vinyl resin became available. At the present time this field represents a major outlet for co-polymer vinyl resins. Aluminum foil, such as is used for cheese wrappers, is protected by a thin clear coating of co-polymer vinyl, while numerous articles fabricated from foil, such as catsup caps and liquor bottle closures, owe their exceptional resistance to the film of vinyl resin deposited on the surface.

Vinyl calender coated paper is widely used as liner material in closures for many food products, such as pickles, mayonnaise, cordials and beverages. The larger field of wrapping paper for perishable foods is just now awakening to the advantages of vinyl coated paper, but for these outlets solution coating seems to have some merit in preference to calender coating, since it is possible to apply a thinner film by the former method.

The thermoplastic nature of co-polymer vinyl is often utilized in the packaging field, where heat sealing is desirable. Two sheets of paper, for example, will be permanently bonded together if a thin film of vinyl is laid between them and the sheets lightly pressed for an instant between platens maintained at approximately 300 deg. F. Of course, this film could be a surface coating deposited from solution on one of the sheets.

The bonding action made possible by heat and pressure is not restricted to sealing two sheets of paper. A very large commercial application in the food packaging field, for example, makes use of the heat sealing feature of vinyl to bond adjoining folds into a strong container.

A very interesting application of vinyl to paper that is indirectly related to the food packaging field is the production of coated labels that are resistant to water, alcohol, alkali, oil and grease. Such labels are usually solution coated by the roll coating or knife coating processes and some very beautiful work is at present being offered commercially.

In the field of larger containers, one might mention linings for shortening barrels, beer barrels and Coca Cola and Pepsi-Cola syrup pails. Even larger containers, such as tank trucks or tank cars, could easily be lined with co-polymer vinyl coatings, but no commercial applications of this sort have been attempted thus far.

Specifying Vinyl Coatings

The preparation of vinyl surface coatings is carried on by a number of established lacquer houses who are in a position to offer their customers great aid in the preparation of solutions, the balancing of thinners, plasticization and pigmentation. The technique of adapting the formulation of the lacquer to the specialized requirements of each job has been carefully developed by these houses who are in a position to aid the ultimate users of vinyl lacquer immeasurably, provided they are supplied with the necessary information as to operating conditions and job requirements.

New Developments

It was stated above that two methods of applying vinyl surface coatings (solution coating and calendering) were in commercial use. A third method is rapidly approaching the status of commercial adoption and offers certain advantages, particularly in the coating of pulp and paper. This new development has to do with vinyl emulsions. Those who have worked with emulsions of co-polymer vinyl find these dispersions much more stable than emulsions of nitrocellulose or of alkyd resins. The absolute water insolubility of co-polymer vinyl may contribute to this stability, since water does not even wet this resin.

Vinyl emulsions are useful in the application of coatings on the surface of porous materials with a minimum consumption of resin per unit of surface covered. This is possible because the water strikes into the porous surface first and thus prevents penetration of the lacquer phase. The lacquer droplets therefore coalesce on the surface to form a continuous protecting film, while the water evaporates from the other side of the surface. This method of applying a surface coating appears particularly promising when used in conjunction with pulp containers such as cake boxes, milk cartons, etc.

Another feature peculiar to emulsions is the ease with which high solids can be reached at low viscosity. An emulsion is a suspension of finely divided droplets of lacquer in water. Thus, the viscosity of the emulsion is not determined by the viscosity of the lacquer itself, but is dependent on such things as proportion of water or continuous phase, size of the lacquer droplets, nature of the emulsifying agent, etc. Thus a very concentrated lacquer phase may be emulsified with water in the proportion of approximately 75 parts of lacquer to 25 parts of water, and yet produce an emulsion of low viscosity. A very slight additional thinning with water will reduce the viscosity to nearly that of water itself.

In addition to the development of water emulsions of co-polymer vinyl which are now on the threshold of commercial availability, several other new developments are in progress that are of particular interest in connection with the impregnation of paper, textiles and fibrous materials of many kinds. Such an ideal as a moisture- and grease-proof, odorless and tasteless wrapping paper of high wet strength may yet prove to be a reality.

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SECTION TWELVE

SHIPPING

Pages 509 to 542

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WIRE STITCHING

WOODEN BOXES

CREPE WADDING

TAPE SEALING SHIPMENTS

COLOR FOR SHIPPING CONTAINERS

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CORRUGATED AND SOLID FIBRE CONTAINERS

by J. D. MALCOLMSON*

A fibre shipping container is a tough, efficient and economical outer package built to withstand the wear and tear of freight, express and parcel post shipment. It is used for shipping all manner of commodities up to a weight limit of ninety pounds. There are two types of these boxes—the laminated walled "solid fibre" box and the cellular "double faced corrugated" box.

The fibre container affords a satisfactory means for shipping fragile articles, as well as heavy commodities of relatively small size. Liquids in glass, for instance, are moved in these boxes with a minimum of breakage. The bottles are usually packed in cells formed by partitions of corrugated fibreboard. Another method of packing which is in greater demand is the "unit carton" system. Articles such as electric irons, lamp fixtures, etc., are placed in an individual carton, which also contains the necessary accessories. A certain number of these cartons, say, two dozen, are then shipped in a container, so designed that the contents exactly fill the box.

The advantages which are claimed for the use of fibre containers are as follows:

First cost: Being largely made from waste products in large quantities, their first cost is relatively low.

Weight: Tare weights are relatively low, resulting in freight savings on shipments as well as on incoming supplies of boxes.

Convenience: The absence of nails and splinters prevents injury to hands or clothing in packing and invites freight handlers to lay aside their hooks. Its relatively small size, which is controlled by railroad requirements, makes for easy handling in shipment and storage. It is often used as a shelf package and as a unit package for delivery to the consumer without re-packing.

Storage: Fibre containers are delivered flat and are stored in a minimum of space.

Concealed theft: Minimized as the case, when properly sealed, must be practically destroyed to open.

Sealing: Very economical, due to the development of automatic sealing machines described elsewhere.

Advertising: Being a paper product, these cases are susceptible to high grade printing in one or more colors.

Sanitary features: These cases are used new and seldom re-used. Paper linings are not necessary.

Stacking: These boxes, due to the combination of light weight and rigid walls, can be stacked to the roof of most warehouses.

Nomenclature

Fibre containers: The general term which includes both corrugated and solid fibre cases. The words "fibre" or "fibre boxes" are often used to designate solid fibre boxes, but this is open to misconstruction.

Corrugated fibre containers: Usually simply "corrugated cases," generally indicates boxes made of single strength, double faced corrugated board.

Corrugated board: A general term and may mean any of the grades named below.

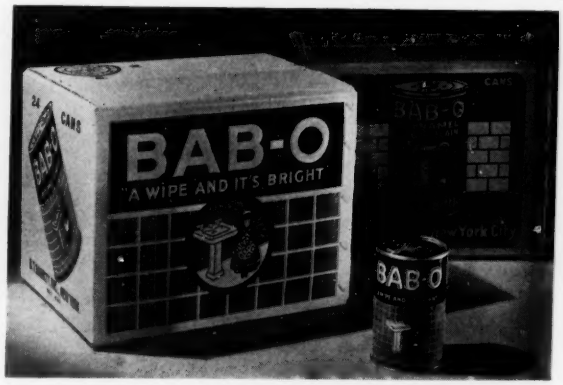
Unlined corrugated: Corrugated paper alone with no "liners" or "facings." It is usually made of 0.009 in. straw but sometimes is 0.009 in. chip and unless otherwise specified, is the usual or large corrugation, $^3/_{16}$ in. in height. It is used as wrapping material for lamp chimneys, etc., and has the disadvantage of stretching and thus losing the cushion value of the corrugations. It usually comes in rolls.

Single-faced board: Has one liner which may be of straw, chip or jute and usually either 0.009 in., 0.012 in. or 0.016 in. thick. It is used for inner packing and wrapping and is usually sold in rolls 36 in. wide, 250 ft. long, weighing from 60 to 75 lbs.

Double-faced board: Double lined corrugated, is made with two liners of straw, chip, jute or kraft and is described by the railroads as "single strength." It may be test or non-test board and cannot be rolled.

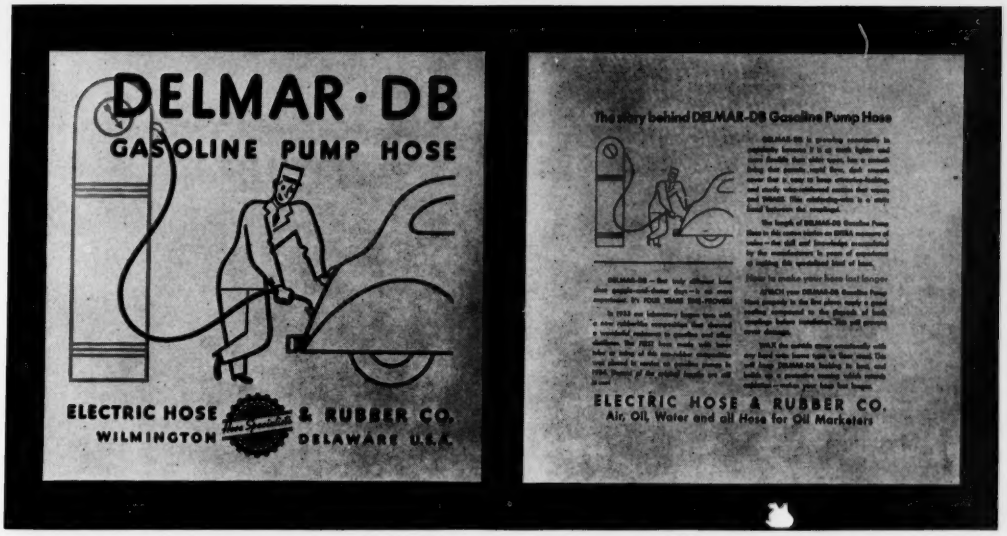
Double-strength board: Often spoken of as "double double" and "double walled," but the term "double strength" is preferable, as this is the designation used by the railroads. It is a combination of double face and single face, having three liners and two corrugations and is from $^3/_8$ in. to $^1/_4$ in. thick.

Straw paper, or strawboard: Used for corrugations, is 100 per cent wheat straw, although rye, oat and rice straws are occasionally used. Strawboard is sometimes imported from Europe, usually from Holland. It is generally made 0.009 in. thick, for corrugating, although 0.012 in. or heavier is sometimes used for this purpose. Chestnut waste, sulphate, sulphite and pine



1. Modernization by redesigned copy on white board in place of former brown jute. Courtesy Robert Gair Co., Inc.

* Director of Research, Robert Gair Co., Inc.



2. A good example of "billboard" type design planned to gain the utmost in advertising value. All detail is segregated to the back panel of the case shown at the left. Photo courtesy Container Corporation of America.

wood fibreboard is also permitted by the railroads for corrugations, but the production is relatively small.

Chip, or chip board: Made from mixed waste papers and is usually 0.009 in., 0.012 in. or 0.016 in. thick. Corrugated board with chip liners is usually used for interior packing.

News, or news board: Made of newspapers and is sometimes used in place of chip, though more expensive. The other grades of boxboard do not enter, to any great extent, in the making of shipping containers.

Liners: The facings of single-face, double-face or double-strength corrugated board. They may be 0.009 in., 0.012 in. or 0.016 in. chip or 0.016 in., 0.018 in., 0.023 in. or 0.030 in. jute or kraft. Solid fibre liners are usually 0.016 in. jute or kraft. "Liner" is also used to describe the interior packing sheet which lines the four sides of a case and which is usually made of double-faced chip or straw corrugated board.

Jute: Really a misnomer, as jute is no longer used in this industry. A "jute" liner is a mixture of new kraft or sulphate fibres and high grade mixed papers.

Filled kraft liners: These are kraft liners with a small proportion of waste paper or groundwood added.

All-kraft liners: These contain no mixed papers but are usually made entirely of sulphate. They are among the new developments that are to be found.

Solid fibre: A laminated board built by gluing several piles of board together with silicate of soda or vegetable adhesive and is often referred to as "fibre" or "fibreboard." (See *Fibre Containers.*) The two outer plies are made of jute or kraft. Solid fibre is usually made in 0.060 in., 0.080 in. and 0.100 in. thicknesses as called for in the Classification, but some 0.090 in. and 0.120 in. board are occasionally used in the making of shipping containers.

Single-lined solid fibre: This is not often used for shipping containers but is applicable where only a single bender is required and permitted.



3. Assembly of several corrugated cases within a single large corrugated case showing inner packing. Photo courtesy Inland Container Corp.



4. A solid fibre case with redesigned and modernized printing to tie up with the design of the inner carton. Courtesy Robert Gair Co., Inc.

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5. Printing on fibre cases should be bold, legible and easy to register. Courtesy Robert Gair Co., Inc.

Test and non-test board: In this industry this usually applies to board that does or does not comply with the railroad requirements on bursting strength.

Express stock: The correct name of this corrugated board is *jute and chip* which describes its construction. At one time this was acceptable for express shipments. The express rules are now essentially the same as the freight rules except that for most items of less than 35 lbs., jute and chip may still be used.

Mullen or Cady test: These two instruments register the bursting strength of a board, presumably in terms of pounds per square inch. Actually the results are not exactly in these proportions and for this reason many people refer to the figures as Mullen "points" or "units." Both of these instruments are official as shown in and established by Rule 41.

Webb tester: This instrument overcomes many of the objections to the Mullen and Cady test by testing the liners of double face corrugated board separately, but it is not recognized as official by the railroads.

Rule 41: That part of the Official Classification which itemizes the specifications for corrugated and fibre shipping containers when used for freight shipments.

Rule 18: This does the same for express shipments in the Official Express Classification.

The Bureau of Explosives: Issues a handbook containing express and freight container specifications for dangerous articles.

Freight Container Bureau: Issues the official specifications for freight shipment of fresh fruits and vegetables.

Food Administration Specifications: These are the same as the so-called *National Canners Association Specifications* and specify higher test corrugated and solid fibre cases for canned goods than are required by the railroads. They are regarded as being unofficial.

Certificate of box maker: This is sometimes known as the "Imprint."

The following list is not complete but covers the most important styles of boxes:

Regular slotted carton (RSC): Most containers, especially for freight shipments, are made in this style because of the economy of using a straight cut blank. All flaps are the same length and the inner flaps do not meet unless the length and width are of the same dimension.

Special slotted carton: *All Flaps Meet*—Also called "Center Special Slotted Carton." This is more expensive as inner and outer flaps are of different lengths, necessitating an extra manufacturing operation with a loss of stock.

Full overlap slotted carton: Also known as "Full Flap S. C." The length of the outer flaps is the same as the width of the box. The inner flaps may meet, gap or overlap. This style is usually desirable on a long, narrow box and gives added strength to any shaped shipping container.

One-piece folder: This has flaps at top only and is used to pack flat material such as advertising cutouts.

Cracker caddy: This is a special container. Usually about 10 in. by 10 in. by 11 in., made of a moisture- and grease-proof board combination. It is occasionally referred to as "can" or a "qu."



6. A good example of bold, legible poster printing. Courtesy Container Corporation of America.



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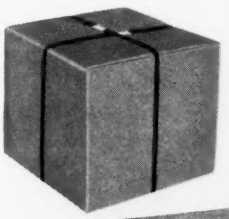
Acme Steelstrap

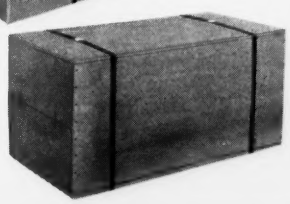


For all kinds of shipping packages—cartons, boxes (wooden or fibre), crates, bundles, skids. Acme Steelstrap provides a stronger, safer container yet reduces shipping and handling costs—savings from 10% to 40% are not uncommon. Important labor, material and time reductions are made possible. Acme Steelstrap is being used successfully by thousands of concerns in shipping virtually every type of product.

Small packages can be bound into one unit, with Acme Steelstrap, thus securing a more economical express classification. Large units reinforced with Acme Steelstrap may be shipped in lighter weight containers for additional economies.

No matter what you make or how you ship it, the chances are ten to one that Acme Steelstrap can save money for you. Let Doc. Steelstrap make a *free* diagnosis of your shipping container. He's had over 50 years' experience in reducing shipping costs. Write for illustrated booklet. Or, ask for details about the free diagnosis.







Acme Steelstrapper

The *new* Acme No. 2 Steelstrapper is the latest addition to the only line of strapping equipment which *combines* the tensioning, sealing and cutting operations with an automatic seal feed. Made to eliminate lost motion, this new Steelstrapper is built for speedy application to heavy packs including skid loads.

There is an Acme tool for every need. Write for details about the money and time-saving Acme tool for *your* requirements.





The sealed joint of Acme Steelstrap has practically the same strength as the strap itself.

Acme SilverStitch

Reg. U. S. Pat. Off.



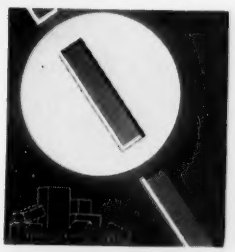
Stapling is faster—more boxes can be stitched per day, with the *one-piece* 5- and 10-lb. coils of Acme Silverstitch. There are fewer stops for coil changes. Economy and satisfactory results are assured by uniform temper, width and thickness.

Silverstitch is GALVANIZED by the Acme process which provides rust resistance, durability and attractive appearance. Write for *free* test coil. State size required.

Acme ColorStitch

Stitching wire in colors that blend or contrast with the printed carton gives added "*eye-appeal*" to cartons and boxes. The slight extra cost is more than offset by improved appearance. Write for sample color card.

SILVERSTITCH and COLORSTITCH are available in these sizes: .103 x .014, .103 x .107, .103 x .020, .103 x .023, .060 x .024 and .060 x .0205.



Acme STEELBELT *for conveying materials*

Acme Steelbelt is available in two types—Open Mesh and the new Flat-Top type—*Stainless Steel or Electro Galvanized Finish.* This new belt is sturdily constructed, flexible. It is made with pivot wires, completely protected from wear at any one point. The special self-locking feature assures safety. Furnished with or without openings which are made to suit specific requirements for drainage and ventilation. No chance for stretching. Cleaning and repairing easily accomplished.



Acme Open-Mesh Conveyor Belt in service in food plant



New Acme Flat-Top Conveyor Belting

Acme Steelbelt of either type provides an efficient and economical means of conveying products through drying ovens, sorting and assembling, washing, etc. Available in sizes to fit practically any requirement. Write for complete details. State type of application.

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7. Another type of convertible corrugated shipping case which is transformed, in the dealer's hands, into a display rack for motor oils. Courtesy Robert Gair Co., Inc.



8. Shipping container designed with special top fold permitting it to be opened to form a strong display unit. Courtesy Hinde & Dauch Paper Co.

Silicate of soda: This is an adhesive sometimes used for sealing containers and also used in the manufacture of corrugated and solid fibreboard. Another name is *water glass* and it is referred to as "silicate."

Point: In this industry a "point" is one thousandth of an inch; 0.060 in. board is always referred to as "sixty point" board.

Height, depth: These synonymous words indicate the distance between the openings of a box, i.e., from top to bottom. "Height" is preferable as in some industries "depth" means from front to rear. The height of a slotted carton is always understood to refer to the last dimension.

Girth: Used in the Parcel Post specifications as the distance around the parcel at its thickest part.

Length: In P. O. specifications is the greatest distance in a straight line between two ends.

Nests, or partitions: Slotted half way so that they interlock. A *Divider* is a vertical pad with no slots.

Star-cut pad: This corrugated pad has radiating die cuts and is used to separate large glass objects, such as bowls and illuminating glassware. It is also known by such descriptive and imaginative terms as "rat-trap pad" and "pie-cut pad."

Die-cut work: Made on a special press and the initial cost of the die and extra make-ready must be allowed for. The ordinary fibre box equipment works in straight lines, at right angles, so that other unusual work is made on a separate cutting and creasing press.

Crease and score: Used interchangeably but "Crease" is preferable as "Score" may mean a knife cut, as it does in the set-up box industry. Such a cut score is not used in the fibre container industry.

Joint and seam: The railroads define "joint" as the result of the operation done by the box maker in taping or stitching the fourth corner of the box; and "seam" as the juncture that is closed by tape in sealing.

Bales and bundles: This refers to Section 4 (*c*) of Rule 5 and means that items accepted under this category may be shipped in corrugated or solid fibre containers *without* restrictions as to weight or dimensions.

Printing plates: Solid fibre is printed from brass plates or electrotypes. Corrugated board is printed from rubber plates which are cast from type or prepared in the usual way from a wood cut.

Patented Types of Fibre Containers

Almost an endless number of unusual boxes have been patented, advertised and finally forgotten. Most of these are either impracticable or too expensive for the purpose intended. Those now in the limelight are:

Reinforced-score box: A corrugated container with a strip of tape glued over the score-line, either on the inner liner or inside the board. Three different companies have patents on variations of this idea.

Reinforced-tape joint: The ends of the tape on the manufacturer's joint is split and tucked under at each end of the joint.

Burlap-covered box: This is a corrugated box with an outer covering of burlap cemented on with asphalt. This box, because of its strength and moisture-proof qualities, is suitable for export use.

Recessed-end box: The ends of this solid fibre box, recessed, are strengthened by the stitched rim.

Bliss box: This type of fibre container consists of a three-piece box made of solid fibre or corrugated board. The blanks are joined by means of flanges stitched in place, which reinforce the corners and all vertical seams. It is claimed that the corners and vertical edges are the vital parts of the fibre box and that when reinforced by stitched flanges, the resulting box is much better fitted to withstand the shocks and strain of handling and of transit. The box is also more rigid and can be stacked higher without bulging.

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Corrugated and solid fibre shipping containers

Made by the makers of
GAYLORD FOLDING CARTONS
GAYLORD GROCERY BAGS and SACKS
GAYLORD KRAFT and SPECIALTIES



• New lows in damage claims and shipping losses are being set for an ever-increasing number of manufacturers by Gaylord Boxes. One reason is the Gaylord "Extra Margin of Safety" which is built into every Gaylord Box... for Gaylord specifications and designs are based on the strains of emergencies... not on the strains of ordinary handling.

To create a container for your product, Gaylord master boxmakers study the special protection it needs ... the hazards it faces in transit and in storage. No possible emergency is overlooked.

But more than that... before the completed design is entrusted with the protection of your product, it must survive "proving ground" tests more severe than it will ever encounter in service.

Thus when your product travels in a Gaylord Box it is assured adequate protection against damage by the roughest of handling. Check with Gaylord on the possibilities of lowered damage in transit for *your* product. A phone call or letter will bring a Gaylord trained packaging specialist. No obligation.

GAYLORD CONTAINER CORPORATION, General Offices: SAINT LOUIS

There's a Gaylord plant or sales office in your territory

SHIPMENT OF FIBRE CONTAINERS

by P. C. MEELFELD*

Corrugated and fibre shipping containers will provide the utmost protection, convenience and economy only when properly planned to meet probable conditions of use and handling and when properly piled in storage and loaded in shipping.

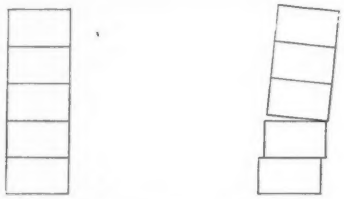
It is essential that shippers as well as box makers be familiar with the regulations. They are too voluminous to remember but one should at least know where to secure the authoritative data.

Consolidated Freight Classification No. 7, issued Aug. 5, 1932, effective Sept. 20, 1932, may be obtained for a nominal sum by writing to the Official Classification Committee, 143 Liberty St., New York, the Southern Classification Committee in Atlanta or the Western Classification Committee in Chicago.

Express regulations are governed by the Official Express Classification No. 31 issued in February, 1930, and since supplemented.

The Post Office rules for parcel post are not as definite as those for express and freight. Form No. 3841 recommends the use of corrugated boxes for a number of listed commodities but specifications other than "securely wrapped" are not given. The usual parcel post weight and dimension limits apply.

There are no uniform rules for fibre containers for overseas shipments. Each steamship line makes its own rules and the stringency of these depends somewhat on the intensity of competition at the time the rules are made.



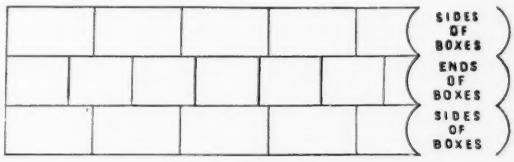
1. Care in keeping piles vertical will result in pressure being distributed over the top of the bottom box. Damage to bottom containers will thus be avoided.

How to Pile Shipping Boxes

Careless piling of fibre shipping boxes causes much damage due to crushing, sagging, tipping, sliding, friction and toppling of piles. Careless piling also destroys the attractive, orderly appearance of modern shipping boxes, thus robbing them of their advertising value.

All of these unhappy results can be avoided by using reasonable care and exercising the few simple rules for piling which follow.

* Advertising Manager, The Hinde & Dauch Paper Co.



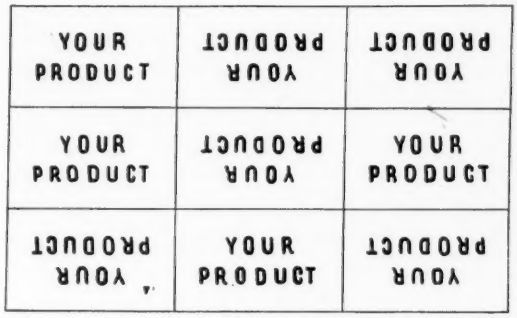
2. Boxes are interlocked into strong, self-tied units by placing one row endwise, the next row crosswise, and so on.

1. Pile on a level horizontal surface only. A sloping or bumpy floor should be leveled with flat boards before piling begins.

2. Keep piles *vertical*, not leaning or irregular at the sides of the stack.

3. Pile the boxes in each pile so that they *interlock* in a self-sustaining unit.

4. Keep printed sides and ends *right side up*, not only to protect the contents but also to display advertising message and contents markings to the best possible advantage.



3. Modern shipping boxes are your traveling billboards. Piling them without regard to their printed sides is a waste of valuable advertising space.

When boxes are stacked in vertical piles straight up and down, weight is properly distributed over the entire bottom surface of the box and the units at the bottom of the pile will not be pinched or crushed by undue pressure on one side or corner.

Boxes are "interlocked" by placing one row *endwise*, the next higher row *crosswise*, the next *endwise* and so on. If boxes are square, the interlocking effect can be secured by staggering the boxes in alternate rows. In either case, note that a box is never placed squarely on top of the box below it, but is placed so that it covers parts of two boxes in the underlying row.

More important than it might seem, is the rule to keep boxes right side up. Their advertising and merchandising power is enhanced, while some products travel more

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from start ...to finish









..You Can Depend on INLAND "Custom-Made" CORRUGATED CONTAINERS



SPECIAL ENGINEERING SERVICE ON Color

Inland offers an unusual engineering service especially adapted to all types of color work. Learn how color can be employed as an effective, profitable merchandising medium. Ask to see samples of Inland color work, including prize-winning boxes.

Let Inland Engineers Solve Your Shipping Box Problems

All the way down the line — from our designing department to your dealer's shelves . . . you can rely on the quality construction of Inland Containers. They are "Custom-Made" for your particular product . . . designed to simplify your packing problems . . . built of 100% Sulphate Kraft linerboard to stand the strain of shipping . . . and cleanly printed to advertise their contents. Everywhere, they create good will.

No matter what you ship — from pins to radios — let Inland engineers tell you what they can do to help you cut shipping costs, reduce damage and breakage, and improve the appearance of your shipping containers. There's no obligation. Just talk it over with an Inland sales engineer or write for further details.

INLAND BOXES

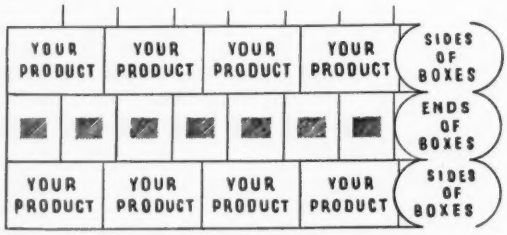
INLAND CONTAINER CORPORATION

EXECUTIVE OFFICE: INDIANAPOLIS, INDIANA

Sales Offices: CHICAGO . . . MILWAUKEE . . . CINCINNATI . . . COLUMBUS
MIDDLETOWN, OHIO . . . LIMA, OHIO . . . CANTON, OHIO . . . EVANSVILLE, INDIANA

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safely and reach their destination in better shape if the boxes remain always upright.

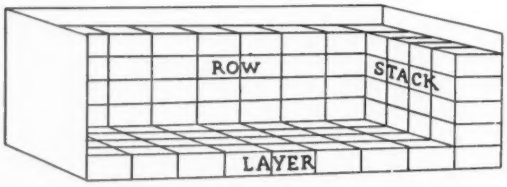


4. Take care to see that boxes are level horizontally and in a straight line vertically. A sloping or bumpy floor should be leveled off with boards or other material before piling boxes.

How to Load Shipping Boxes

Now that products packed in corrugated shipping boxes are transported in trains, trucks, airplanes, ships and almost every other form of freight carrier, the loading problem becomes more and more complex. And yet, although loading methods must adapt themselves to varied conditions, some basic principles will apply in all instances.

The following outline, designed primarily as a guide for loading carload shipments in freight cars, contains fundamental rules that will be of assistance in some other loading jobs.



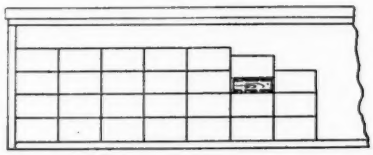
5. Illustrating the definitions of row, stack and layer, terms used in determining the number of boxes a car will accommodate.

Use "clean" cars: A "clean" car is one that has a good level floor, is free from protruding nails and is in good condition generally. The ordinary meaning of the word "clean" is, of course, another requirement. If there are protruding nails, remove them. Clean up all water or oil spots. When using refrigerator cars, cover the floor racks with corrugated board and cover bottom screens of ice bunkers.

Estimate the load: With the car carefully checked and in good condition, next step is to estimate the load, to find out how many boxes the car will hold. If the load doesn't completely fill the car, determine the best arrangement for the partial load.

To estimate the number of boxes a car will accommodate, it is necessary to place in the car only one row lengthwise and one row crosswise, both stacked as high as space will permit. Multiply the number of boxes in the lengthwise row by the number in the crosswise row. The result obtained will determine the number of boxes the car will accommodate.

When the number of boxes isn't sufficient to fill a car, estimating the load will enable the loaders to start end rows at the right height, making a good firm part-load without confusion and delay. To determine how many layers high the part-load will be, first lay down a single layer row lengthwise of the car, then a single layer crosswise. Multiply the number in one row by the number in the other. Divide the result into the total number of boxes to be loaded and you get the number of layers *high* of the part-load. For example, you have 600 shipping boxes to load. The car accommodates 20 boxes in a lengthwise row and 6 in a crosswise row, or 120 boxes in a single layer. Dividing 120 into 600 gives you 5, the number of layers in the load. In this instance, naturally, you would start stacking the rows 5 layers high. If there were 640 instead of 600 boxes, the 40 boxes would form an incomplete sixth layer which should be held in place securely by means of an incomplete layer brace.



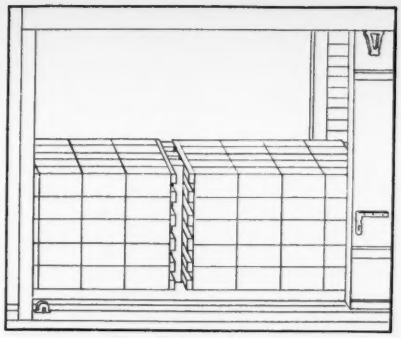
6. An incomplete layer brace used to hold containers securely in place during shipment.

Loading the Car

The following rules will be found to cover most loading problems:

1. Load lengthwise. Boxes should be loaded lengthwise of the car, the longest side of every box being parallel with the front-to-rear line of the car. Keep tops up. Work from ends of the car to center.
2. Load same size boxes together. When loading boxes of different sizes, keep all boxes of the same size together.
3. Use loading jack to keep boxes pressed firmly toward ends of car. The less "play" is permitted to come between the rows while loading, the safer will be the loaded merchandise.
4. Use center bulkhead to fill any remaining space. After loading car from ends to center, any space remaining at center of car should be filled with a bulkhead.
5. "Stagger" crosswise rows if boxes do not completely fill car from side to side. The extra space will be harmless if the load is arranged so that alternate rows touch opposite sides of the car.
6. Use incomplete layer brace when loading partial top layer. If there is part of a layer left over on top of the load, use a brace to lift one crosswise row of boxes, thus making the lifted row hold the incomplete layer firmly in place.

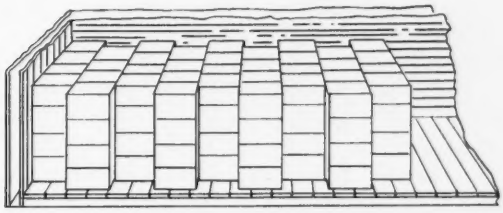
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7. After loading car from ends to center and to a pre-determined height, any space remaining in the center of the car should be filled with a bulkhead.

7. Install adequate doorway protection. After loading is completed, with all braces in place, install a good doorway barricade. Important things to remember about doorway barricades—use plenty of nails to get a strong structure; space horizontal boards so that each board helps restrain *two* layers of boxes; set inside faces of the boards flush with the inside of door posts. Doorway protection also includes weather stripping at car doors to prevent water damage. Where outside weather stripping is not provided, use several thicknesses of paper for an inside job, tacking to door post from top to bottom, wrap around door post and then tack again. Loose ends will lie snug against door when it is closed.

In shipping by air express, loading is done by the carrier. There are no special rulings or requirements covering packaging of products for air express. Pack the merchandise in corrugated shipping boxes as you would pack for railway express shipment. No outside wrapping is necessary. Just seal the package, attach the address label and mark plainly "Ship by air express."



8. If crosswise rows do not fill car from side to side, stagger the rows with alternate rows touching opposite sides of the car.

STEEL STRAPPING

by V. C. HOGREN*

After a product is made, the manufacturer or the shipper still faces the important problem of safely yet economically delivering the material to the buyer. Safely—because on this factor may depend the winning or losing of future business. Economically—because the difference of a few cents in cost may mean either a profit or a loss on the transaction.

To steel strapping may be given the major credit for the low cost of safely carrying the nation's products. Practically every conceivable type of pack—ranging from small parcel-post packages to carloads of sheet steel—can be made more secure and can be shipped more economically when steel is employed. These economies are possible through lower container costs, freight charges, and elimination of damage and pilferage losses.

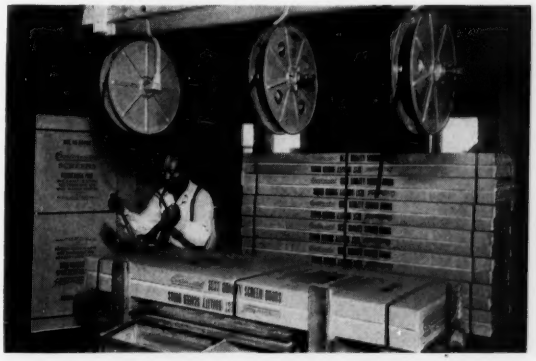
The Federal Government[1] recognizes the value of steel strapping as an aid to economical distribution, for its suppliers are permitted to use less expensive boxes when properly reinforced with steel strapping. Another bulletin,[2] this one issued by the Forest Products Laboratory of the U. S. Forest Service, states "The thickness of lumber required . . . in a nailed wooden box to give it adequate strength . . . may safely be reduced 20 to 40 per cent if properly bound with metal straps."

Freight classification rules often require the use of steel strapping on bundles and bales as well as on many specific articles. This also applies to widely diversified export packs which are of necessity reinforced to prevent damage and theft. However, domestic shipments account for the largest percentage of strapping applications.

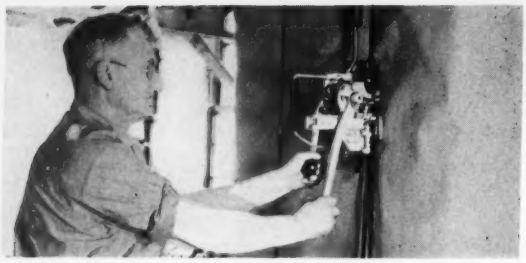
Two kinds of steel strapping are available: nailless and nailed. The latter, which is nailed to containers, is rapidly being displaced with the nailless type which can be applied quicker and more effectively. Tools, made for the purpose, tension and seal the strapping.

[1] Federal Standard Stock Catalog Sec. 4, Part 5 (NN-B-621).
[2] Technical Note No. 183, Forest Products Lab., Madison, Wis.

* Advertising Manager, Acme Steel Co.



1. Steel strapping six screen doors to make a conveniently handled bundle. All photos courtesy Acme Steel Co.



2. Automatic seal feed tool for applying steel strap.

Strapping on Wood Cases and Crates

Obviously the strength of these containers is considerably enhanced with steel strapping. So much in fact that the lumber in cases and crates can often be safely reduced by a minimum of 20 per cent. Frequently the reduction is greater and attractive savings in costs accrue. Specifications made by container redesign laboratories frequently include steel strapping for protection and added strength. Since shipping cases are made lighter there is further economy in lower transportation bills. Of most importance however is the elimination of damage and pilferage, twin evils in present day merchandising.

If one strap is recommended it should be centered on the box. When two straps are used each is placed one-sixth the distance from either end. Three or more straps may be suggested on long cases and there are conditions under which straps are placed at right angles. The tension applied on the straps by the tensioning tool or stretcher (as it is commonly known) should be sufficient to cause the straps to cut into the edges of the box.

Strapping on Cartons

Both fibre and corrugated boxes can be made more secure with steel strapping and the straps often serve not only as a reinforcement but as a means of closure. Hence by merely snipping the straps, the package can be quickly opened, without damage to the carton. This is a decided advantage when the contents are to be inspected or altered and the same container used for re-shipment.

Through the use of steel strapping it becomes possible to take advantage of the ease and economy of employing fibre or corrugated wraps instead of containers on some commodities. It would be well for shippers to investigate the freight classifications on their products as it may be possible to obtain lower rates with steel strapping.

Strapping on Bales and Bundles

The security of compressed bales is due almost entirely to straps. In fact the textile industry was one of the first principal users of steel strapping. The number of straps on a bale depends upon its size, weight, and the amount of compression exerted by the baling press. Bundling also offers exceptional possibilities for savings. This field can be divided into three general groups:

1. Bundling of several packages into a unit: Two or more cartons or wood boxes can be strapped to make a single package. The advantages of this method are evident as only one shipping label is required—handling is speeded up and none of the boxes can become lost or separated from the rest. Theft of smaller packages is eliminated and the fewer units handled frequently results in lower traffic costs.

2. Bundling to eliminate containers: This type of bundling can be applied to a number of products which do not actually require a package. Both the container cost and freight on its tare weight are saved through the use of steel strapping.

3. Classification of cartons and fibre-wrapped packages as bales or bundles: Carriers permit steel strapped cartons and fibre-wrapped packages of some commodities to be classed as bales or bundles, and consequently lower freight rates are obtained by the shipper. This is only possible when a steel reinforcement is employed.

Steel Strapping on Skids

This is a most convenient method of shipping merchandise. Although paper has been skid-loaded for years, the range of products now benefited extends to bricks, motors, tin-plate, lumber, tubing, etc. With this system the commodity is strapped to an inexpensive skid or pallet. Hand or power trucks quickly move the unit which would be too heavy for manual handling. Space is conserved when skids are stacked on one another. Steel strapping makes the skid idea possible and profitable to both shipper and receiver.

Unit Loading for Carloads

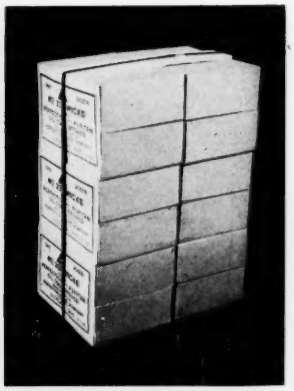
Steel strapping is employed for bracing carload freight —both straight and mixed loads. Lading is banded into two half-car units which are allowed to shift thereby absorbing rather than resisting shocks.

One of the newest developments in carload shipping is in the banding of pool and stop-over cars. The lading intended for each customer is individually strapped to avoid loss, damage and confusion in unloading.

3.



4.



3. Because of steel strap, this carton can be classified as a bale.
4. Steel strap makes one conveniently handled unit out of these six packages.

WIRE STITCHING

by G. PRESCOTT FULLER*

Assembling and sealing containers by means of wire stitching is much used because of the ease of its application and the strength and security of the joint, each stitch giving a positive closure of the flaps. No setting time is required as when adhesives are used, and relatively cheap labor can be employed. Furthermore, if warehousing and repacking are desired, the stitches can be removed with a screwdriver or special tool without appreciable damage to the case, whereas a box with glued joints cannot be opened without serious tearing of the flaps. The method is economical, as inexpensive machinery is needed, and wire stitches cost only from three to five cents per thousand. Wire stitching is of general application, irrespective of the size of the container, the construction of the flaps or the kind of board of which the container is made.

All wire stitching machines are variants of the simple box stitcher, which comprises a stitcher head, a body or frame supporting the head and also containing the driving mechanism, a base supporting the body and a horizontal arm for holding the work. The end of this arm contains the clinching device. Stitching heads are of two general types, in one of which the wire is fed from the side while in the other the wire is fed from the top. Both types are constructed with means for feeding the wire and cutting it in predetermined lengths, receiving the piece of wire and transferring it to the bending mechanism, bending the ends of the wire to form legs, and driving the formed stitch through the work, a supporter being provided that supports and guides the stitch while being driven. The arm contains a grooved clincher which receives the legs of the stitch and bends them inward and tightly against the under side of the container on which work is being done.

Stitcher heads with side wire feed are usually employed for stitching containers since they can be more ruggedly constructed, while the vertical feed type is used for multiple head work because the heads can be placed closely together.

The clinching arm is quickly adjustable, up or down, to accommodate varying thicknesses of work and the wire feed is also instantly adjustable. Angle arms can be obtained for handling special classes of work, and adjustable gauges of various sorts can be had for facilitating repetitive operations. Machines are available with the stitcher head set at an angle so that stitches can be driven at 45 deg. to the grain or the corrugations of the container board.

Many different sizes and shapes of wire may be used. The width of the crown can be changed, provided the proper parts are installed. The ends of the wire can be cut square or at an angle of 45 deg. as desired. The wire usually employed is of copperized or galvanized steel, .103 in. wide and .017 in. or .020 in. thick. Another type of wire is 0.60 in. wide, and .020 in. or .024 in. thick. The number of stitches of average length per pound of wire will run from 1600 to 2500, and the cost from three to five cents per thousand. Stitching wire comes on 10-lb. spoolless coils, an aluminum spool-holder being used in setting it up on the machine. The usual crown length is $^3/_8$ in. or $^7/_{16}$ in., although for some purposes longer or shorter crowns are sometimes employed.

The following sections describe the more usual applications of wire stitching in the assembling and sealing of containers as now practiced.

Slotted Containers

Box stitchers are used for stitching the manufacturer's seams of regular slotted containers. This operation can be performed on a standard box stitcher, the work being pushed along the arm as stitched, and the finished box afterward withdrawn. The box may also be folded over the arm and stitched as it is being withdrawn toward the operator. There is a slight advantage in making up boxes in this way in that the flange may be more accurately positioned along the adjacent side than when the box is folded on the creases and then stitched. Stitches are placed about $2^1/_2$ in. apart, with tie stitches sometimes used at each end of the seam, although on boxes less than 18 in. in depth the classification permits a maximum spacing of 3 in.

It is usual practice to use the so-called "slotted container stitcher" for this operation, this machine being equipped with a table on which the blank rests, and also an open head device (or clincher tongue) bolted to the stitcher head and rigidly or semi-rigidly supported thereby. The open head device is merely a double guiding member and clincher arm which holds the stitching flange and the opposite side panel in proper position during the stitching. The box blank is folded along two opposite creases so that the flange overlaps the adjacent panel, the flange and panel being guided through the open head and then stitched. The finished box is removed from the discharge end of the machine, thus making a straight-line operation.

For stitching corrugated boxes, it is preferable to have the stitches diagonal to the corrugations to give greater holding power, and machines up to 48 in. in throat length are available for this work. The operation is carried on in the same manner as when a straight head machine is used.

Semi-automatic R. S. C. stitchers are often used for this work where long runs of one size are involved, the ma-

* Dexter Folder Co.

chines having one stitcher head set at an angle of 45 deg., and which in some cases is of the duplex head type to permit driving double rows of stitches, or tie stitches at each end of the seam. The machine is equipped with devices which square the box and set the first stitch in proper position, and space the other stitches evenly and in predetermined number, the finished box being ejected by means of high-speed rollers at the rear end. The machine is quickly adjustable for different sizes of boxes, and one operator can easily turn out 30 to 35 boxes per minute having five stitches in the seam. Larger boxes naturally require more time.

Three-Piece (Bliss) Boxes

One style of three-piece box has the stitching flanges made a part of the body blank and is usually assembled on a box stitcher, a nub being placed over the end of the arm which forms a guide or spater to bring the stitches at the center of the flange—a panel holder also being furnished for convenience. The operator first pushes the top flap of one end panel into the panel holder, then folds up the body blank into shape and pushes the same over the end panel. By holding the sides firmly in the hand the end panel is also held in position, and the box placed over the stitching arm and the bottom flange attached by means of a single stitch in the center. The three flanges are now stitched, tie stitches usually being placed at the top and bottom of the side flanges for greater strength. When offset slotting is used, with the bottom corners overlapped, a stitch should be placed as close as possible to the overlap, and double stitches in the overlap itself. A machine with a V arm may also be used, in which case the stitches are placed at an angle of 45 deg. to the grain or corrugation of the board, which gives a somewhat stronger joint.

Another type of this box has the stitching flanges made a part of the end panels, and is assembled on a special double head stitcher with 45 deg. heads. A movable and adjustable work table is placed between the stitcher heads, the edges of the table serving as guides in the assembly of the box. The first step consists in laying the body blank on the table with one top flap bent down in front of the operator, who holds the two end panels in position against the sides of the table so that the stitching flanges overlap the first side of the box in proper position for stitching. One stitch is placed while the table is in its outward position, the table pushed in and the remainder of the stitches placed in order, automatically spaced. The body blank with the ends attached is then moved forward and bent over the end of the table, thus presenting the bottom for stitching. The flanges on the bottom of the ends are folded in place and stitched as before. The third operation is a repetition of the second and this completes the assembly of the container.

The second style of box can also be assembled on a V arm machine, although this must be done one side at a time and the speed is less than when a double head stitcher is employed.

Recessed-End Boxes

These may be stitched on regular box stitchers equipped with a gauge to properly position the stitches in the center of the flanges. If desired, an adjustable table can be placed below the clincher arm to support the box while being stitched, especially after it has been filled with the product to be shipped.

Telescope Boxes

The blanks for heavy telescope boxes are received flat by the customer and may be creased twice at each corner, with diagonal slotting, so that the corner flaps fold up in triangular form, either against the ends or the sides of the box as desired. This construction is shown in Fig. 1 and Fig. 2.

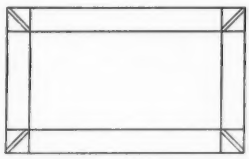


Fig. 1



Fig. 2

The flaps are stitched on a box stitcher in the manner shown, the number of stitches placed depending upon the weight and character of the contents. Sometimes one of the triangular flaps is folded outside of the end, and the other inside of the side, both being stitched in place to give added strength. Another method of making up such boxes is to crease and slot the corners so that when assembled, rectangular corner flaps are formed which are folded up against either the end or the side of the box as desired. This construction is shown in Fig. 3 and Fig. 4.

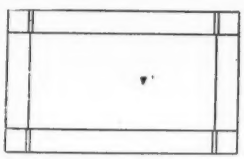


Fig. 3



Fig. 4

Folding Suit-Boxes

These are usually stitched by hand on single head box stitchers provided with gauges. Multiple head stitchers may be used, however, where production requirements run to large volume.

Wood-End Boxes

Wood cleats are frequently applied to the end panels of three-piece boxes; also panel boxes are often made up with wood frames and fibre sheets. The wood is usually $^{5}/_{16}$ in. to $^{3}/_{8}$ in. in thickness, and the board may be either solid fibre or corrugated. This combination of materials can be stitched on a standard box stitcher, but

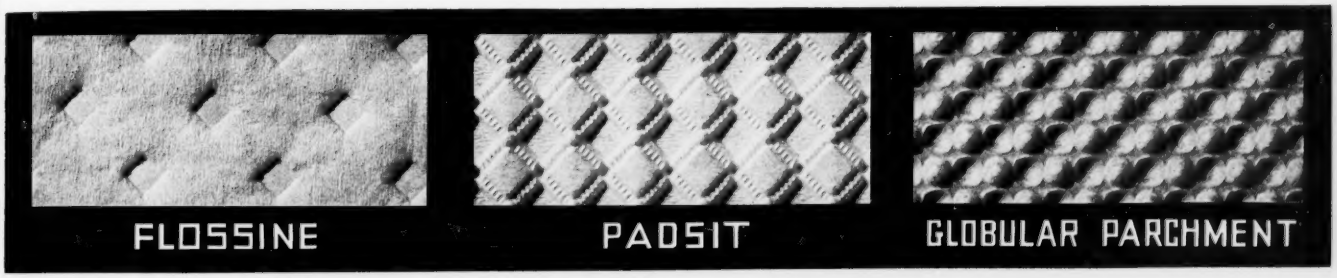
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a special wire draw gear may be required in order to form staples with a sufficient length of leg to penetrate the wood and fibre and clinch on the other side. Double head stitchers may also be employed.

Cracker-Caddy Covers

The covers of the familiar cracker caddy are about 10 1/2 in. square, with flaps that are from 3/4 in. to 1 in. wide. The flaps may be arranged in two ways, as shown in Fig. 5 and Fig. 6.

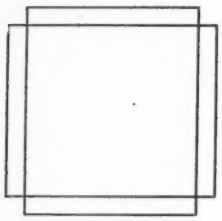


Fig. 5

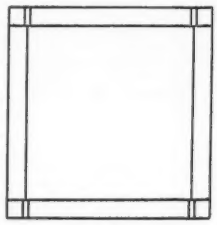


Fig. 6

When the corners are cut out as in Fig. 5, the covers are stitched on a corner stay machine, using a stitch that has the crown bent at an angle of 90 deg., one leg being clinched in each flap. The driver is cut out in the center at an angle to drive the stitch with a 90 deg. angle crown, and a moving clincher mechanism is employed that clinches the staple legs flat against the flaps, which are brought tightly together. The arm of the machine is also shaped with a 90 deg. angle. In practice the operator sits in front of the machine and stitches the four corners in succession, frequently working at a rate of 15 or more covers per minute.

While the usual type of caddy cover is cut out at the corners, the one shown in Fig. 6 is sometimes used. This involves no more material, but makes use of the corner pieces (cut out in the other type) to strengthen the corners of the cover, slotting being employed.

Bag Closing

The tops of filled paper bags are often closed by wire stitching, using standard box stitchers. The top of the bag is either folded over once, or a double seal fold may be used, and two or more stitches inserted, fine wire such as No. 20, No. 25 or No. 1 Hybar being ordinarily used. A sufficiently light wire should be employed so that when the joint is pulled apart the wire will be held in the bag material and not loosened so that it can fall into the bag.

The sealing of heavy bags is best done on a machine with a horizontal stitcher head, the stitches being driven horizontally instead of vertically as usual. A table equipped with rolls is placed under the stitcher, or a standard conveyor is used, on which the bags stand with the flaps at the right height for closing. The top flaps are folded down and guided into the stitcher head between the driver and the clincher, using a bent sheet metal guide for that purpose.

Miscellaneous Uses

Box stitchers are also used for a wide variety of other operations such as attaching articles to cards; fastening sheets of insulating strips together; holding the ends of gaskets; assembling box specialties; stitching the ends of fibre drums; forming attachment hooks on automobile upholstery; attaching handles and fastening pads to sheet steel; attaching canvas backs and seats on lawn and porch furniture; and for assembly of berry baskets, display boxes, pastry containers and book matches.

Special attachments, guides, feeding mechanisms, etc., can be installed to facilitate any of these operations where high production is desired.

Bottom Stitching

A bottom stitcher is nothing but a standard box stitcher without the clincher arm, a vertical post being substituted which is mounted on the base casting or frame. The post is 1 1/2 in. to 2 1/2 in. in diameter and the clincher is fitted into the top, which is reduced in area to 1 in. to 1 1/2 in. in diameter. The head of the post is adjustable (up or down) by hand, to accommodate different thicknesses of board and is usually constructed with a heavy spring inside the post, so that if extra heavy work is inserted without proper adjustment, the spring will give and the stitcher head not be damaged by the strain. The post is hinged at the bottom, and by depressing a special pedal may be tilted forward to permit easy insertion of the box before stitching. The best types of bottom stitchers have a considerable opening between the top of the post and the stitcher head, and when small or medium size boxes are being stitched the operator can usually place them over the post without tilting the latter forward, thus saving time in the operation. (This is the usual practice when stitching the bottoms of cracker caddies.) The regular operating pedal is then used to set the stitcher in operation. In most modern machines a single pedal is employed, and the post normally tilted in forward position. When the pedal is depressed the post is first moved into vertical position and locked in place, and the stitching then commences without further movement of the pedal. The stitching is not necessarily continuous, since by partly raising the foot pedal the operation can be interrupted without releasing the post from its locked position.

Duplex head bottom stitchers are also used; a single stitcher head being arranged to drive two stitches at once, with the crowns in line and spaced two and one-half inches apart. A short bar is placed on the top of the bottom post, fitted with two clinchers properly spaced. Double head bottom stitchers have two stitcher heads which may be placed in fixed position (nonadjustable) for repetitive work on one size of box, or which may have narrow stitcher heads adjustably mounted. In either case a bar is fastened to the top of the post in which the clincher blocks are mounted, and for the adjustable machine the clincher blocks are movable over a fairly wide range.

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Bottom Stitching of Slotted Containers

In many industries it has been found good practice to stitch the bottom flaps of slotted containers before they are loaded, the advantage being that the box is thus held firmly in shape, with a secure bottom closure, while the goods are being inserted. In the glass bottle industry, for example, cases are usually bottom stitched, and after loading the top flaps are temporarily sealed by spot gluing, temporary stitching or taping and then shipped to the user, who fills the empty bottles, labels them, reloads in the box in which the empties were received and then seals the tops.

Bottom stitching gives a secure and strong attachment of the bottom flaps, unaffected by moist conditions of storage which would weaken a closure made with tape or glue. Furthermore, cases can be bottom stitched very much more rapidly than they can be glued or taped. Several conditions of bottom stitching are met with, the more important being described below.

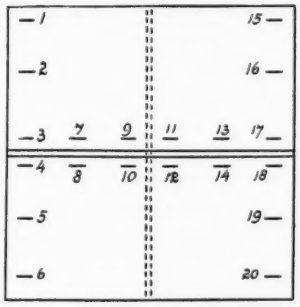


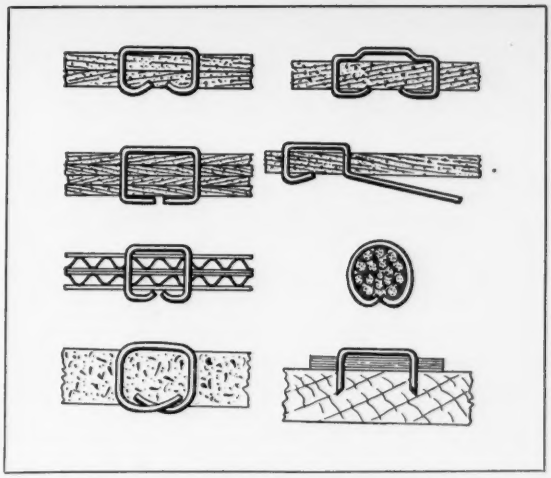
Fig. 7

All flaps of case meet in center: This condition is met in all square containers or in center special slotted cartons. When using a single head machine the stitches may be placed in the order shown in Fig. 7, or the stitches along the center may be placed first to hold the box in shape and the ends then stitched. The box should be held firmly from the two sides so as to hold the box square and avoid any gap between the outer flaps. The stitches should not be over 2½ in. apart and the stitches along the edges of the abutting outer flaps are usually placed close to the edge. Double stitches are often placed at 9, 10, 11 and 12 the better to hold the inner flaps to the outer. Care should be taken that the stitches are tightly clinched so that the inside of the box will be smooth. When stitching corrugated boxes the container may be held at an angle to the machine, thus allowing stitches to be driven diagonally across the corrugations to give greater holding power.

Outer flaps meet, inner flaps not over 6 in. apart: The same method of stitching is used on slotted cartons which are not square, but in which the inner flaps are not more than six inches apart. No stitches, of course, are placed except where there are two thicknesses of board.

Outer flaps meet, inner flaps over 6 in. apart: Where the inner flaps are over 6 in. apart the Classification requires that if wire stitching is used, the outer flaps must be overlapped one inch or more and attached by wire stitches not over 2½ in. apart.

Outer flaps overlapped: Containers of this construction are much used in the shoe and other industries, and when stitched on a single head machine, the center


Illustrated above is the application of wire stitching to various types of work and a showing of some of the different forms of staples available

overlap (1 in. or more) is stitched first, the sides of the box being firmly held between the hands of the operator. The stitches are placed across the overlap as the box is most easily held when the seam, or length of the box, is in the direction of the arm of the machine. The stitches on the ends may be placed either in the same direction as those on the seam or at 45 deg. or 90 deg. Of course all stitches may be placed parallel to the seam, but this is slower and not usually done. When the outer flaps are overlapped one inch or more the box may be of any length, without regard to the space between the ends of the inner flaps.

Full overlap boxes: Boxes with the bottom flaps fully overlapped are often sealed with glue; but when wire stitched it is usual to cut down the overlap to 1 in. in order to save material, except where the case is very long and narrow and extra rigidity is wanted.

Double head bottom stitching: In one method of bottom stitching of boxes, the outer flaps of which meet and the inner flaps meet or are not over 6 in. apart, the heads are set so that one stitch will be driven just inside the end of the box and the other just inside the edge of the opposite inner flap. The ends of the clincher bar form guides for spacing the stitches from the side of the box. The stitches are placed in order, one side being completed first, the box moved over on the post and the other two rows placed. An adjustable table is often fitted around the post to support the projecting top flaps of the box, which helps to hold the bottom flaps in flat position during the stitching operation. A disadvantage of double head stitching is that more stitches must be placed than are required by the Classification. The extra cost of these stitches is, however, usually not of importance compared with the value of the extra speed of the operation.

In single head stitching from three to six boxes per minute can be bottom stitched by one operator, while on a double head machine the output can be increased by 60 per cent or more. The output, however, will not be doubled, since an important part of the time of the opera-

tion is required for folding the box in shape, placing on the machine, and for removing the finished box after stitching has been completed.

Duplex head bottom stitching: A duplex head stitcher, driving two stitches at once, spaced 2 1/2 in. on centers, can be used on all boxes, whether the outer flaps meet or overlap; whereas a double head stitcher cannot be used on overlapped flaps since there is no way of placing the stitches in the center part of the seam. When used on a box with the outer flaps meeting, the center seam is stitched first, one stitch on each side of the joint. By holding the box at an angle to the machine the stitches may be driven diagonally and thus brought closer to the joint than when placed at right angles. The ends of the box are then stitched, the stitches being placed in order, two at a time.

When stitching a box with center overlap it is easier to stitch the ends first (since the box can be better held if both ends are equidistant from the body), the center seam being then completed. This can be reversed, however, and the center seam stitched first, but in this case one arm must be extended over the box to hold the opposite side until the first stitches have been driven. Duplex head stitching is not quite as fast as double head stitching since the position of the stitches in the center of the box, or on the overlap, must be judged by the eye (as in the case of single head stitching) although the stitches along the ends may be rapidly driven because the clinching arm forms a guide. It is, however, a method of wider application since it can be used without any machine adjustment for all sizes of boxes and for all flap constructions, and is much faster than single head stitching under average operation.

Cracker caddies: These small cracker boxes have the bottom flaps overlapped about 3/4 in., and two stitches are used on the small sizes and four or more on large caddies. Single or duplex head machines may be used, with two operatives, one of whom folds the box in shape and hands it to the second who does the stitching. Speeds of 30 boxes per minute on single head machines are not unusual.

Top Stitching

A standard top stitcher comprises a box stitcher without the solid clincher arm, in replacement of which a thin steel blade is used with the clincher set in the end. This blade anvil is made of forged steel and is tapered toward the front to make it as thin as possible, being somewhat flexible as a result. These machines are made with blades up to 33 in. in length, which is adequate to handle any length of box in regular use.

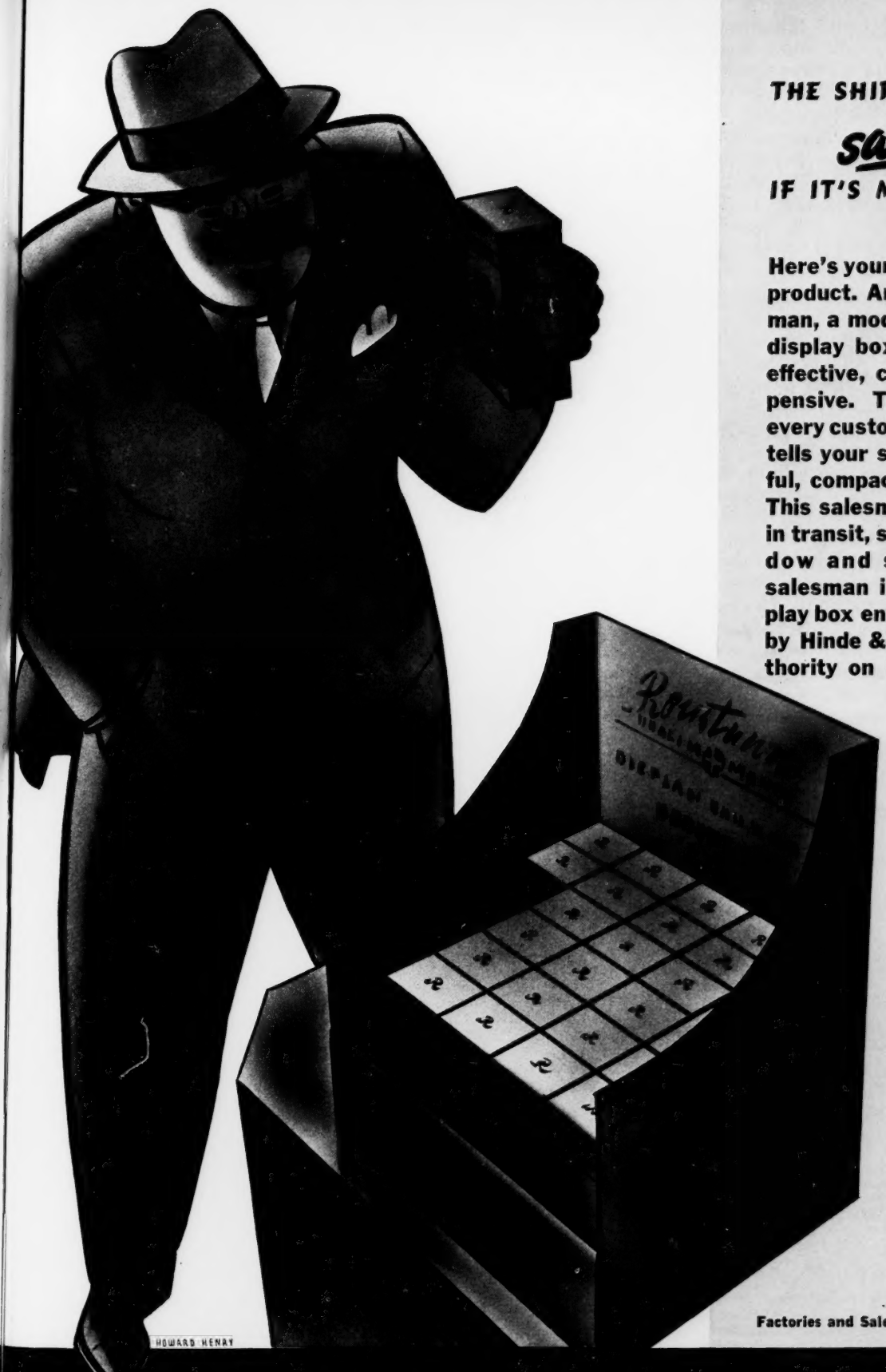
Since the top stitching operation is always conducted on boxes that have been filled and may be of considerable weight, a work table is provided which is fitted with ball-bearings on which the box may be easily moved in any direction. This table is counterbalanced by means of springs or counterweights, and is quickly and easily adjustable up or down by hand, so that when the box is placed upon it the top flaps will be in proper position for the insertion of the blade anvil. When in use the operator lifts the case onto the table, stitches the flaps in order and removes the finished case to a truck or conveyor. When containers of varying heights are used they are placed on the table and the latter adjusted to the proper height for each.

A recent development in top stitching involves the use of a table lifted by means of the motor on the machine. The table lifting mechanism is connected to the motor through a special clutch, and a separate double-action foot pedal is used for its control. When the back of the foot pedal is depressed by the operator the table and case are lifted, a stop being attached to the head which automatically brings the table to rest at just the right position for the blade anvil to enter under the top flaps. By depressing the front of the pedal the table is lowered again, while a brake is engaged when in neutral position to hold the table rigidly in place.

This machine can be placed beside a conveyor line, or made a part of the same, the lower position of the table being fixed at the proper level. Each loaded case as it comes to the stitcher is moved onto the table, raised by the power lift to the stitching point, stitched, lowered and pushed onto the discharge conveyor. This relieves the operator of the fatigue inherent in the lifting of each package by hand and also eliminates the danger of tearing the flaps and corners of the box when the latter is handled, unsupported by the table, before sealing. An operator using this type of machine can handle many more cases per day than by the old method and with a minimum of physical effort and fatigue, since a 90-lb. case can be as easily and quickly manipulated as an empty one. The use of this machine also minimizes the danger of damage to the case or its contents by forcing the blade anvil under the top flaps when not in proper position for operation.

Standard top stitchers are much used in the form of combination with a bottom post, the latter being removable while the blade anvil and table can be swung out of the way when the machine is used for bottom stitching. The change from one use to the other can be made in a few minutes, without the use of tools; and this machine is popular in small or highly departmentalized plants where a combination of operations on one machine is desirable.

Portable top stitcher: This machine is entirely self-contained, with built-in universal motor, and weighs but 20 lbs. In use it is suspended from an overhead trolley by means of a spring, so that the machine hangs freely and can be moved in any direction at the will of the operator without having to lift it. For top stitching small boxes or for setting temporary stitches for warehousing, a 10-in. blade anvil may be used, while for general purposes a C-shaped anvil is employed. This is a miniature equivalent of an open head device, but capable of doing work not possible on an open head. The C anvil can be turned at the corners of the box, and when the last stitch has been driven the shape of the anvil is such that it can be withdrawn from the seam by a rotary motion, leaving not over a 2-in. opening. This



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machine is of advantage in sealing the tops of large and heavy boxes, since the latter do not require to be moved from the truck or conveyor, but the stitcher is brought to the box and moved freely around the seams, thus permitting more efficient operation.

Under the Classification requirements of Rule 41, top stitching is permitted when the outer flaps meet and the inner flaps are not over 6 in. apart, or where the top flaps overlap one inch or more, in which event the inner flaps may be any distance apart. In no case may the inner flaps be less than one and one-half inches in width, and they are frequently extended in three-piece Bliss boxes to from two to four inches for extra strength and rigidity. The stitches must be not over $2\frac{1}{2}$ in. apart, and all seams must be completely stitched, allowance being made for sufficient space for the withdrawal of the clinching device (blade anvil). It is also permissible under the rulings to stitch the side overlapping seam and to glue the end flaps, provided that the latter are not less than 2 in. in width and are brought outside the case.

Cracker boxes and caddies: Cracker boxes are not usually top stitched, the covers being fitted over the tops of the boxes and taped to the sides. However, two methods of attaching the tops by wire stitching have been developed and are in use in a number of plants. The first method requires the use of an inverted bellows flap on the body, comprising flaps on the top of the body which are turned back outside the box and the cover then fitted over the same.

The second method is applicable to cracker boxes of regular construction, without the use of extra flaps. A horizontal stitcher is employed, the blade anvil moving downwards instead of upwards as in the preceding method. The cover may have die-cut slots, placed close to the edge, for the insertion of the tip of the blade anvil (which is made very narrow and thin for this work). As each stitch is driven the anvil is automatically moved down through the slot and then withdrawn again, and thus made ready for the next operation.

When large cracker boxes are used made of corrugated board (which may or may not have separable covers), the previously cut slots may be omitted, the end of the blade being sharpened so that as it descends it cuts its own slot through the board. The use of slots in the top of the box does not leave appreciable openings, since the board is pliable and when the thin blade is withdrawn the fibre springs back into nearly its original position.

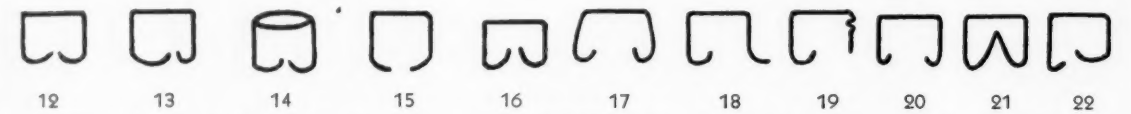
Bumper boxes: These boxes, used for automobile bumpers, shade cloth, roll screen wire, and other long articles, are relatively small on the ends. A horizontal stitcher is used with a regular blade anvil (thinner than usual), and the machine usually has no base, the body being bolted to a table on which the box is placed. The ends of the box are pushed against the blade which is brought inside the outer flaps and the necessary stitches then driven.

Telescope boxes: While telescope boxes are usually tied with rope to hold the two sections together, it is also possible to seal them by wire stitching on a machine with a blade anvil. To stitch the two sections together the end of the blade anvil is forced under the flap of the inner section and between it and the end or side (as the case may be) and stitches driven through the flap of the inner section and the overlapping cover, thus fastening the two sections together. Four stitches are used on each box.



1 2 3 4 5 6 7 8 9 10 11

Unclinched: 1. Perfect stitch. 2. Legs uneven, either leg may be too long. 3. Crown twisted and not flat, anvil spring broken and anvil does not function. 4. Right driver tip broken. Either or both may break or chip. 5. Left leg buckles. Either leg or both may buckle. Dull knife or wire too small. 6. Wrong size wire, or insufficient compression on heavy work. Supporter retracts too easily. 7. One leg missing. Improper anvil adjustment, or wire slipping in feed gear. 8. Wire comes out in pieces. Anvil not lined up with former grooves. 9. Both legs buckled. Wire too small, clincher too narrow or dull knife. 10. Corner broken or nearly cut through. Wire too hard, corner of shoe too sharp, driver corners sharp or formers worn. 11. Corners rounded, anvil worn on edges, wire will bind in anvil.



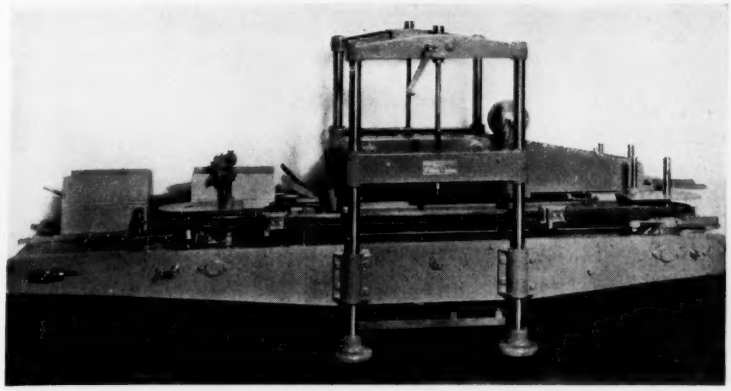
12 13 14 15 16 17 18 19 20 21 22

Clinched: 12. Perfect stitch. 13. Legs uneven. Either leg may be too long. 14. Crown twisted and not flat. Spring broken and anvil does not function. 15. Clincher too low. 16. Clincher too high. 17. Legs spread. Poor cutting, worn formers or thickness of work beyond capacity of machine. 18. Only one leg clinched in. Clincher not in line with driver. 19. One leg buckled. Clincher not in line with driver, or too narrow. 20. Short legs. Insufficient wire draw. 21. Legs cross. Wire draw too great. 22. Uneven clinching. Clincher not level and parallel with formers.

Adjustments of Stitchers: The accompanying chart shows illustrations of perfect and imperfect stitches, together with the causes of the imperfections. Practically all defects in wire stitching arise from improper adjustment or from the presence in the stitcher head of worn parts needing replacement.

Counterboy

GUM TAPE SEALING MACHINES



Taping Containers Automatically with Conveyor-Taper

HERE'S the long-awaited machine that takes loaded cartons from a conveyor line, closes the flaps, and *tape-seals them* more rapidly, more uniformly, and more accurately than is possible by manual effort. Automatically applies *one strip on top* of box and *one on bottom* of box.

No operator needed, except for occasional refilling of the tape-chambers and water-fountains.

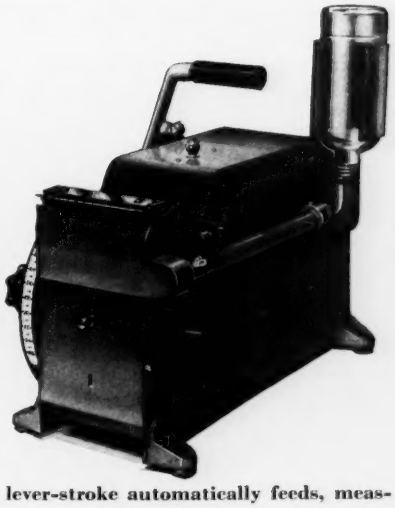
Speeds up production, sharply cuts down costs. . . . Volume shippers are invited to ask for details. No obligation.



"BOX-MAKER'S" MOTOR-DRIVEN TAPE DISPENSER

FOR stepping up production in any taping operation requiring repeated strips of any predetermined length. . . . Takes kraft paper or duplex-cloth gummed tape. Automatically feeds, moistens, dispenses, cuts off. Has speed control to dispense strips as required, up to 28 per minute; or strips may be dispensed intermittently as desired. Very accurate measuring. . . . Production men, seeking greater output and lowered taping costs, will be interested in details and machine's modest price.

COUNTERBOY'S *NEW* 1940 TAPE-SHOOTER



THE most highly refined and versatile machine for general shipping room use. Takes gummed tape 1-inch to 4-inches in width. Perfected automatic-moistening-control assures safe-sealing of shipments. Easy lever-stroke automatically feeds, measures, moistens, dispenses, and cuts off any desired tape strip, up to 36 inches. Saves time, cuts down work. Saves 10% to 50% tape cost. Built-in label moistener. Shipment sealed and labeled in same operation. *This machine is loaned for try-out right on the job. Ask for demonstration.*

BETTER PACKAGES INC. SHELTON, CONN.

WOODEN BOXES

Three general types of wooden boxes and crates are utilized as shipping containers, respectively, sawn wooden boxes, plywood boxes and wirebound boxes.

Sawn Wooden Boxes

Although available in hundreds of sizes and weights to accommodate products ranging in size from pencil leads to bombing planes, wooden boxes made from sawn lumber are all classified under seven distinct headings known as Styles 1, 2, 2½, 3, 4, 5 and 6. The box styles are illustrated below and a brief description of each follows.

The Style 1 box, simplest of all, is adaptable to many types of products, with 60 lbs. as a reasonable weight limit. Boxes of this type consist of a single thickness of lumber made from one or more pieces of wood, with sides, top and bottom nailed to the ends. Top and bottom boards are nailed to the side grain of the ends and the side boards are nailed to the end grain of the ends.

In Styles 2, 2½ and 3, each end is strengthened with four cleats. The ends are thus reinforced against splitting and the sides are strengthened by the greater holding power of nails driven into the side grain of the vertical cleats. For gross weights of more than 200 lbs. and for large containers such as are used for textiles, these styles are commonly used.

The Style 4 box is designed to carry loads up to 200 lbs. and to withstand severe handling. The two heavy cleats at each end of the box will strengthen the ends against splitting, provide side-grain nailing for the sides and help to take the thrust if the box is dropped.

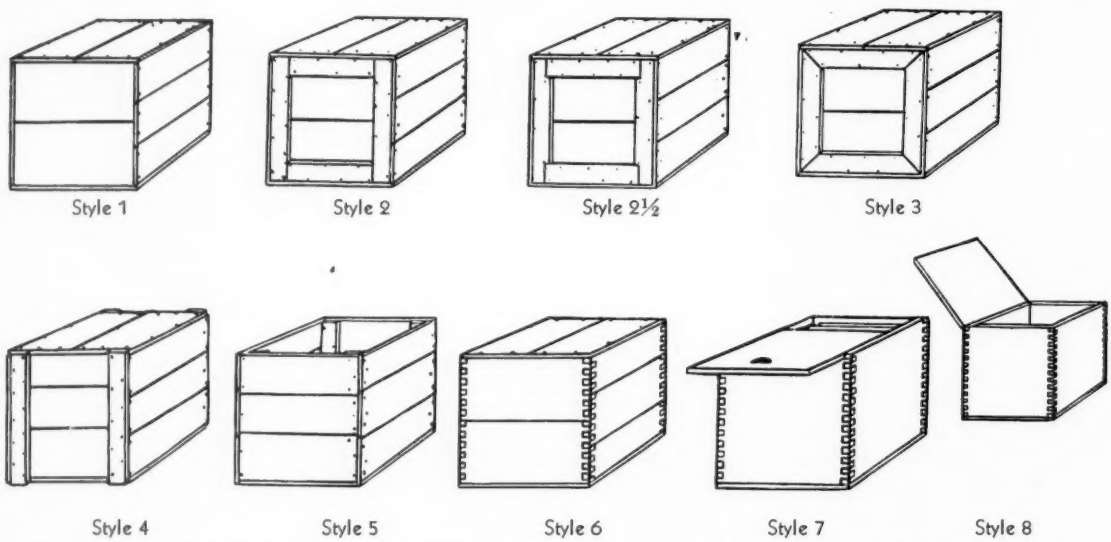
When the question of storage space makes desirable a reduction in the outside length of the package and when the shape of the contents is such as to leave space in the corners of the box, cleats are placed on the inside to form the No. 5 box. These cleats may be either square or triangular, depending upon the nature of the contents and the cost of manufacture.

Style 6 boxes, with lock-corners, are often used when tight, rigid packages are required. Weights carried usually range from 10 to 150 lbs. Lock-corner boxes are of particular value for products that are subject to sifting or where maximum rigidity is required.

In selecting any one of the seven styles of boxes, a shipper may be influenced to some extent by the comparative initial cost, without giving due consideration to other important factors. In general, Style 3 boxes cost the most and Style 1 boxes the least. Although the difference in cost is not great, there is a big difference in the performance of the several styles of boxes and in the protection they offer the contents.

So many elements affect the durability of a box and its ability to withstand present-day handling and transportation that it is not practical to present concrete comparisons of the advantages of the various types. The species of lumber employed, its quality and dryness, the care used in the manufacture of shooks (box parts), the nailing and closing of the boxes, the character and density of the contents and the method of interior packing, all on the behavior of the box when in use.

The distance the box must travel and the transportation facilities to be used, will appreciably affect the de-



Style 1: Nailed wooden box, uncleated ends, sides held by end grain nailing. Style 2: Nailed wooden box, double cleated ends eliminate weaknesses found in Styles 1, 4, and 5. Styles 2½ and 3: Variations of Style 2 box. Style 4: Nailed wooden box, outside cleats. Style 5: Nailed wooden box, inside cleats. Style 6: Lock-corner box, cover and bottom held in place by nailing. Styles 7 and 8: Variations of Style 6 box. Courtesy The New England Box Co.

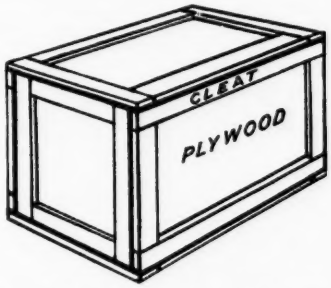
sign, as will the use of reinforcing metal straps or wire. Although there is an impression among shippers that lighter containers may be used for carload shipments, it should be remembered that, except in rare instances, every container may move in less-than-carload traffic before reaching its destination.

Boxes rigidly constructed from sawn lumber, in itself tough and hard, offer a high degree of protection against cutting, puncturing and abrasion. Wooden boxes may be stacked without special braces and cars or trucks may be completely filled. Warehouse charges, usually figured on the basis of floor space occupied, can frequently be cut by high piling, without danger of damage to contents in containers in lower tiers.

Wooden boxes provide a difficult barrier for sneak thieves and offer protection against rodent attack. Not being affected readily by moisture or humidity changes, wooden boxes, when properly packed, often protect their contents from rain or snow for considerable periods.

Plywood Boxes

The thickness of material does not alone determine strength. Plywood is an improvement upon nature—made by the gluing together and crossing of the grains of two or more pieces of thin wood, called veneer. Plywood, weight for weight, is stronger than other materials and this light, strong material is reinforced with sawed lumber cleats in a number of ways to produce the standard styles illustrated. For many uses, special styles are needed and these are scientifically designed to meet conditions. Each commodity presents a separate problem, so that various thicknesses of plywood and sizes of cleats are used. Often, unless shipping experience is available, laboratory or other tests to determine correct construction are necessary.



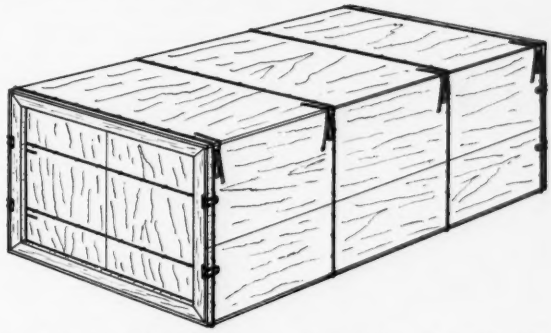
1. Typical plywood box construction. There are a number of plywood styles, varying with the nature of the load, the weight per package and the hazards of transportation. Illustration courtesy Atlas Plywood Corp.

Plywood box parts are all one-piece, this being one of the factors accounting for the great strength, the light weight and the protection against dirt and pilferage, making assembly of the shooks very simple and economical and insuring that all shooks received can be assembled without loss, there being no parts that can become separated.

For many commodities, internal bracing is necessary and the one-piece construction of plywood boxes is such as to add strength to this bracing and often makes possible a simplification not attainable where like rigidity is not supplied.

Thickness of plywood used varies from $^{3}/_{24}$ in. to $^{5}/_{16}$ in. in 3-ply and, for very heavy or export work, 5-ply as thick as $^{1}/_{2}$ in. is at times used. The cleats most generally used are $1\,^{1}/_{2}$ in., 2 in. and $2\,^{1}/_{2}$ in. in width and $^{5}/_{8}$ in. or $^{13}/_{16}$ in. in thickness.

Sizes range from those made to carry very small articles to those 200 in. or more in length, many of which carry extraordinary weights.



2. Typical wirebound box—one of a number of constructions utilized widely in fruit and vegetable shipping as well as in many other industries. Illustration courtesy 4-One Box Machine Makers.

Wirebound Boxes

Wirebound boxes are light-weight, wooden shipping containers, reinforced by steel wires securely stapled to four of the surfaces—the sides, top and bottom. The wooden parts are made thick enough to provide the necessary resistance to crushing, puncture and moisture and thin enough to spring under shock and transmit the stresses to the steel wire framework. The fundamental principle underlying the construction of these boxes is that strength from steel wire costs less than strength from wood. The substitution of wire for wood results in lower tare weights, box cost and freight charges.

An outstanding development in this type of container is the All-Bound Box, which has binding wires stapled to all six surfaces—a 50 per cent increase—and is closed with Rock Fastener closures. These boxes are delivered all in one piece, knocked down, instead of three pieces. Only a fraction of the space is required as for set-up boxes. They are easily set-up by hand, by one man, at rates of from 100 to 150 boxes per hour. Rock Fastener closures are interlocking loops with ends turned back, driven through the wood and clinched, which simplify the closing. One man will be able to close from 100 to 150 boxes per hour.

Commodities of almost every character are being carried in such boxes, weights varying from a few pounds to a ton. The boxes can be printed attractively on any or all faces, in one or two colors.

We are indebted to Nathan Tufts, vice-president of The New England Box Co., for the information on sawn wooden boxes contained above; to R. D. Magill, secretary of the Plywood Package Institute, for information on plywood boxes and to E. A. Srill, vice-president of 4-One Box Machine Makers, for information on wirebound boxes.

PROTECT YOUR *SALES-*

PACKAGE CONTENTS AND SURFACES AGAINST SHIPPING DAMAGE WITH ...

KIMPAK Gives You THESE 3 ADVANTAGES!

1. SOFT, CUSHION-LIKE PROTECTION

"Eye Appeal" on the sales counter or shelf helps attract customers to your merchandise. Wise shippers everywhere choose KIMPAK Crepe Wadding to help protect that sales-winning "Eye Appeal" against jolts in transit—jolts that might easily mar expensive finishes or break fragile containers. Because KIMPAK is soft and resilient—it cushions the shocks in transit—separates loose articles to help prevent chipping and scraping. It contains no dirt or grit—it will not scratch the delicate surfaces of your packages or merchandise.



2. ADAPTABILITY TO ALL TYPES OF MERCHANDISE

Whatever your packing problem is, KIMPAK Crepe Wadding offers the ideal solution—because it comes in rolls, sheets and pads in a wide variety of sizes and thicknesses. Therefore, whether you're shipping cosmetics in artistic cases, packing fragile drug and cosmetic containers, or mailing elaborate window and counter displays, you'll find there's a convenient size and form of KIMPAK to do the work.



3. ECONOMY AND EFFICIENCY IN THE SHIPPING ROOM

KIMPAK Crepe Wadding saves shippers time and money. It's light in weight to help keep shipping costs down. It's as easy to use as a piece of string—actually makes new packing efficiency possible—because you simply lay it on or wrap it around the merchandise to be protected. There's no fuss, no muss, no waste in the shipping room when you use KIMPAK.



. . . and Helps *BOOST SALES* Besides!

KIMPAK Crepe Wadding gives you two big sales-winning advantages. For not only does it serve to protect against damage in transit, so that surfaces, when they reach the dealer, are "factory-fresh" and ready to pass rigid customer inspection—KIMPAK also makes an ideal display pad or background to "set off" your goods in your smart merchandising package.

Learn more about KIMPAK!... mail coupon *today* for FREE portfolio of samples and illustrations of actual uses.

BEST SELLERS MUST BE GOOD AND

XUM

WINNING

Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

CREPE WADDING



Choose Kimpak

to Protect These Materials and Finishes in Transit:

Bakelite and Other Plastics
Bronze **Celluloid**
Cellophane
China **Glass**
Lacquer **Leather**
Metal Foil
Paper
Papier Maché
Polished Metals
Porcelain Enamel and Other Ceramics
Pottery **Veneer**
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LOOK GOOD

CREPE WADDING

by FRANK L. BLAKE*

Crepe wadding, as the name implies, is a highly resilient, protective packing material. It is available in sheets and rolls, in many thicknesses and sizes, to meet varied needs. It is supplied plain or with various backing papers. By the use of various types of embossing, a wide range of decorative or utilitarian effects is achieved. Both highly absorbent or moisture-resistant forms are available, to meet the requirements of certain types of products.

Cushioning protection: Because of its inherent resiliency, crepe wadding is used as cushion packing for the shipment of innumerable fragile items—pharmaceuticals, cosmetics, scientific instruments, radio tubes, etc. While the primary reason inducing its use in such instances is the material's cushioning quality, its fine appearance as a portion of the package and its ability to be tied in with the general package design—by color or by embossing—undoubtedly play a large part in inducing its choice over possible alternative cushioning materials.

Protection finishes: Its extremely soft surface, its laminated crepe structure, which absorbs vibration internally, and its freedom from harsh foreign matter, have made wadding the most favored protection for fine finishes on wood or metal products or packages. Thus, in addition to radio cabinets, refrigerator cabinets and all types of furniture, many fine wooden boxes, polished metal containers and similar re-use packages are shipped with the protection of crepe wadding.

Parcel Post shipments: In the shipment of liquids or easily liquefiable materials, the Postal Regulations are easily complied with when crepe wadding is used, because of the material's high capacity for, and rapid rate of, moisture absorption. Crepe wadding will absorb sixteen times its own weight in moisture. In respect to both Parcel Post and freight shipments, these materials boast a fine record in the elimination of costly damage claims, due to the combination of their cushioning action (preventing breakages) and their moisture-absorbing action (preventing damage to adjacent products, containers, etc., in the event of breakage.

Box top padding: A special form of crepe wadding, available in various thicknesses, paper-backed and ready for use, is manufactured for box top padding and for other padding purposes.

Another form now available is a fancy corrugated wadding which provides—in certain instances—a desired rigidity, while retaining the protection feature of cushioning action.

Both the plain and corrugated types are available in white and in numerous colors and tints. The paper-backed types may permit the packager to achieve additional color contrasts, in some instances.

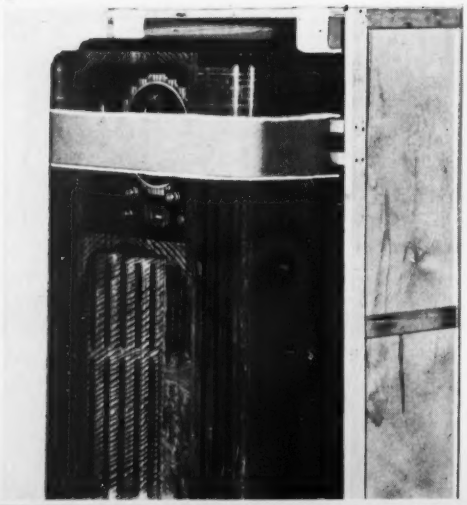
Cotton-lined paper is used as a protective wrapping in the form of bags or cut-to-size sheets. The soft lining absorbs shipping shocks. Anti-tarnish varieties of cotton lined paper are available, being completely free from sulphur and other tarnishing agents.

*Kimberly-Clark Corp.

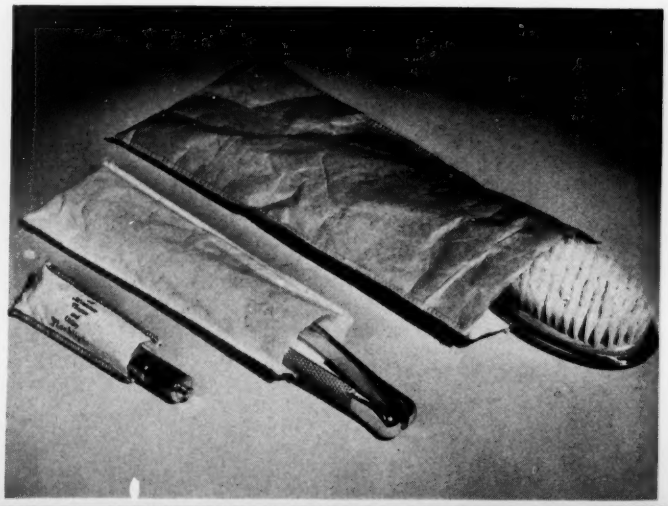


1

2



3

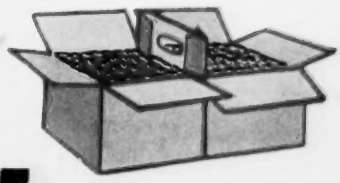


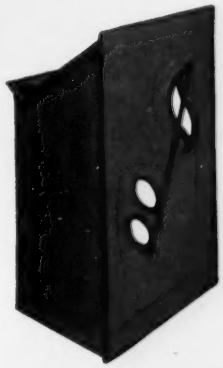
1. Crepe wadding used as protective package pad. **2.** Crepe wadding for furniture packing. **3.** Cotton-lined paper sewn into protective bags. Photo courtesy Cottonluxe Manufacturing Co.

XUM

Color NOTE CORRUGATED







COLOR

The predominant note in the presentation of your product.
Eye appeal demands attention.
Colored containers create interest and promote sales.
We are equipped to furnish the finest colored corrugated board produced.
COLOR-PAK featuring moisture resistant, commercially matched special colors.



DESIGN

Our skilled designers can give you an economical solution to the most difficult of packaging problems, and originate specialty articles usually considered beyond the field of corrugated board.



STRENGTH

U. S. Corrugated Fiber is strong in texture, yet light in weight, being water proofed, makes an ideal shipping package. The distinguished list of our clientele indicates the high quality of our containers.

SERVICE

The geographical location of our modern plants insures service unexcelled. Your inquiries relative to COLOR-PAK will receive immediate consideration.



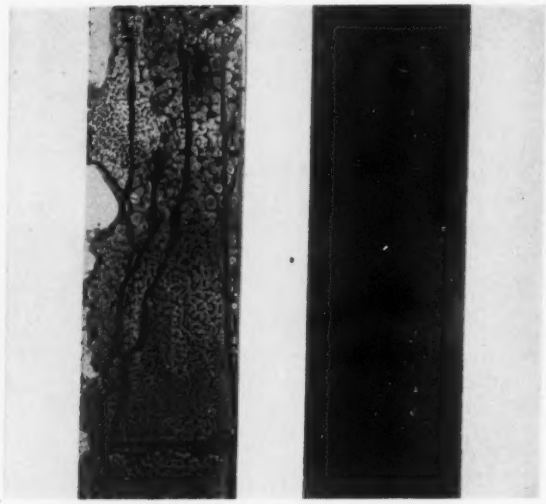
"PACK IN COLOR-PAK"

The U.S. Corrugated-Fiber Box Co.

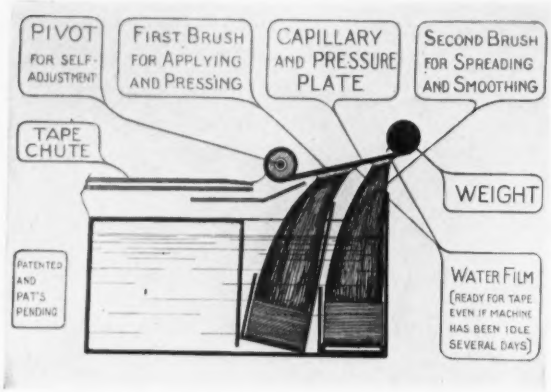
GENERAL OFFICES, INDIANAPOLIS, INDIANA

TAPE SEALING SHIPMENTS

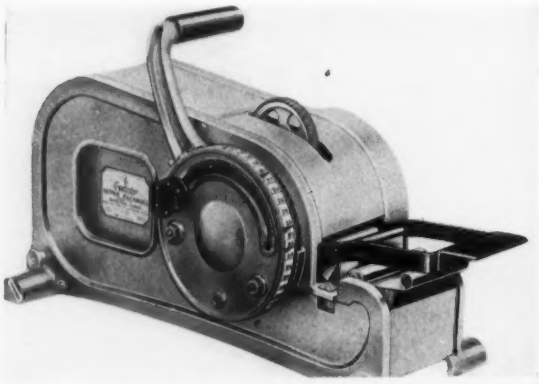
by J. D. MALCOLMSON*



1. Poor moistening (left) contrasted with good moistening.



2. Diagram showing moistening-control unit.



3. Tape sealer for mixed shipments, for general shipping room use. Takes tape 1 in. to 3 in. wide; dispenses up to 30-in. strips with one handle stroke.

Sealing a fibreboard container with gummed tape is not a hit or miss proposition. The correct method is the result of considerable research and experience, but even so is much simpler than some of the amateur methods sometimes used. Briefly, it all boils down to these five points:

1. Learn the railroad, express and parcel post regulations.
2. Use a good grade of gummed tape.
3. Moisten it thoroughly and adequately.
4. Apply it where it will do the most good with the least tape.
5. Get contact—everywhere—between the tape and the box and maintain contact until glue sets.

Rules and Regulations

Freight: The principal regulations are covered by Section 4(a), Rule 41 of the Consolidated Freight Classification. These call for 60 lb. kraft paper testing not less than 60 lb. Mullen or Cady. The tape must be at least two inches wide and must cover all seams of boxes and lap 2 1/2 in. or more over the sides and ends of the box and must be *firmly glued* to all surfaces with which it comes in contact. The strips at the top and bottom of the end panels need not overlap. This refers mostly to slotted cartons. Other paragraphs in Section 4 describe tape sealing for other styles of boxes.

Express: These requirements will be found in Rule 18(t) of the Official Express Classification. They are the same as for freight, except that the amount of tape to be used varies depending upon whether the inner flaps are more or less than six inches apart. (This reference to inner flaps used to be included in the freight requirements but was dropped some time ago.) Until recently, the express rule also called for a reinforcing cross strip across the center of the top and bottom on certain boxes, but Supplement 11 did away with this cross strip.

Parcel Post: While no tape sealing specifications are issued, the Post Office has ruled that domestic third or fourth class (parcel post) merchandise may be enclosed in sealed parcels bearing printed labels (not rubber stamps) which show the nature of the contents and name of the manufacturer, producer or shipper, and are endorsed "Postmaster—This parcel may be opened for postal inspection if necessary," or words to that effect. This notice may appear on your address label, or on a separate label, or, better still, may be printed on the gummed tape with which the package is sealed. The name and address of the shipper must also appear.

* Container Division, Robert Gair Co., Inc.

STAPLES

ANY SIZE

ANY WIDTH

ANY SHAPE

FLAT

HUMPED

ROUND TOP

ANY CLINCH

BLUNT OR POINTED
IN FINE MEDIUM OR
HEAVY—ROUND OR
BROAD FLAT WIRE

TACKING

GLUING

RIVETING

SEWING

HINGING

HOOKING

TAPING

ONE Modern Method Outmodes 7 Former Methods

STAPLECRAFT

CHEAPER BETTER—FASTER

Imagine a machine so finely adjusted that it can drive a wire staple around a thin glass vial with perfect fit, fastening the vial securely to a card without breaking the glass—and you have some idea of the versatility of this highly developed ACME method of product assembly.

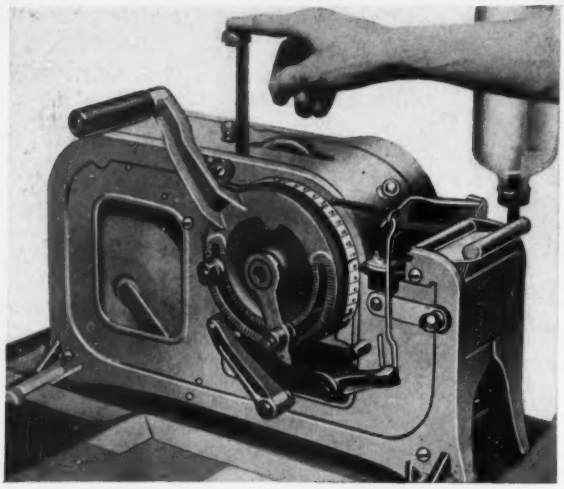
For many years we have been offering *cheaper—better—faster* solutions to many of industry's most difficult production and assembling problems—operations where tacking, gluing, riveting, sewing, hinging, hooking and taping have seemed to be the only proper solutions. There are very few assembling methods for which STAPLECRAFT cannot offer—not a substitute—but a *cheaper—better—faster* way.

We don't have to come into your plant to show you what STAPLECRAFT may mean to you in time, labor and money savings—just send us a brief note describing your assembling or production problems together with the sample of material in question. We'll do the rest and there is absolutely no obligation on your part. And incidently—STAPLECRAFT equipment in daily use in the Nation's largest industrial plants, is far cheaper than you would think—$5.00 to $25.00 for hand power machines, $35.00 to $85.00 for foot power machines and motor driven equipment as low as $95.00.

ACME STAPLE CO.

ACME BUILDING • • • CAMDEN, NEW JERSEY

Staplecrafters since 1894



4. Repeater sealer for runs of same sized cartons. May be set to measure any two strips up to 50 ft. in length. Handles tape from 1 in. to 4 in. wide.

It will be noticed that all these regulations call for paper sealing tape—not cloth. This didn't just happen so. Cloth tape would make a stronger seal, but years ago the carriers learned that a thief could strip off a piece of cloth tape, remove part of the contents and reseal with another piece of tape without tearing either the tape or the box or both.

Certain dangerous articles, such as insecticides and other powdered poisonous articles, which come under The Bureau of Explosives, are required to be sealed with gummed cloth tape when packed in corrugated and solid fibre boxes. Cloth tape is also used by the box manufacturers in joining the fourth vertical corner of a slotted carton. Sometimes this is clay filled cambric, sometimes "duplex" consisting of cloth and paper and sometimes "asphalt" tape where water-proof and odorless asphaltum is used as the duplexing adhesive.

Asphalt has certain objections which have been avoided by an interesting grade of tape just developed wherein a creped kraft paper is duplexed with a colorless water-proofing adhesive. The crepeing makes for great flexibility and the tape has strings buried in the crosswise direction, making it almost impossible to tear.

Paper and Glue

Gummed paper sealing tape is usually made of kraft paper gummed with a good grade of animal glue. Like everything else, there is good gummed tape and cheap gummed tape. The total difference in cost between the best and the cheapest, when applied to one sealed passage is almost infinitesimal. The quality of the kraft paper may be judged by weighing, calipering, tearing and tensile tests. The glue is more difficult to evaluate and must be judged by the reputation of the tape maker and by its ability to moisten quickly and evenly and set quickly and efficiently. Hide glue has great strength, while bone glue lends setting speed. For this reason, bone glue is usually used plus a little hide glue for additional holding strength, plus certain chemicals for increasing flexibility and deodorizing.

Tape made with cheap glue may seal all right, but after a while the dried glue may crystallize and the tape will then come loose.

In an effort to standardize the minimum qualities of gummed tape, the Department of Commerce, in cooperation with the gummed tape industry, has developed Simplified Practice Recommendation No. R 114-30 which reduces No. 1 kraft sealing tape to three standard weights—35 lb., 60 lb. and 90 lb. These weights are before gluing.

The bursting test is also 35 lb., 60 lb. and 90 lb., respectively. For the 60-lb. case sealing grade, the tearing test is to be at least 118 Elmendorf units in the machine direction and 140 in the cross direction, while the tensile test (one inch wide) is to be 47 lb. in the machine direction and 27 in the cross direction. Standard roll lengths to be 800 ft. on 35 lb., 600 or 1000 on 60 lb. and 375 on 90 lb. Standard package to be 30 in. long (viz. 15 two-inch rolls) and 16 standard packages to constitute a standard case.

As yet, the Government specifications have not attempted to define the glue nor the adhesive quality. This is because the sticking of glue is a somewhat complicated reaction. Gummed tape does not adhere simply because it is tacky and sticky as does medical adhesive tape. When moisture is applied to the glue surface of a strip of sealing tape, the glue dissolves in the water.

The result is a flowable solution of glue in water and this solution soaks into the surface of the fibreboard box to which the tape has been applied. Then the water evaporates and the glue remains. Thus thousands of tiny fingers or anchors of dried glue are hooked under the fibres of the board.

Obviously, the coating of moisture applied to the glue surface must be sufficient to thoroughly dissolve the glue, and the glue itself must be of a good enough grade to go into immediate solution in ordinary water at room temperature. In other words, a flowable solution must be produced almost instantly. Insufficient moistening will make the glue tacky and sticky but will not carry the glue solution down into the surface to be sealed. Tape moistened with only a thin coating of water will invite the water to contract into insolated patches and, while such tape may stick quickly, it will not hold, especially after drying. Imperfect adhesion and blisters are the inevitable result.

If, on the other hand, too much water is used, or if the moistening act is too long prolonged (as in completely immersing the tape in a pan of water), the easily soluble glue may be washed away or else the glue will not have a chance to dry during the normal rubbing period.

These thoughts have led many inventors to develop a tape which will combine the stickiness of a thin coating of moisture with the holding power of a heavy coating of moisture. This apparent paradox has been successfully accomplished by grooving the glue—either in straight parallel lines or in zig-zag designs. Such glues

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CORRUGATED SHIPPING CONTAINERS • DISPLAYS • SPECIALTIES

WITH OR WITHOUT OVER-ALL PRINTING . . . .

this year . . . CELEBRATES ITS TWENTY-FIFTH ANNIVERSARY in the business of serving the corrugated paper needs of American business.

Reckoned in years alone one-quarter of a century is not a very long, nor important, period of time. Reckoned in terms of achievement twenty-five years becomes significant. It is good to have been in business so long but it is much more satisfying to know that we have accomplished much in the construction and development of a substantial and influential business entity.

We have been serving the needs of corrugated paper users since 1914. We have grown noticeably every year since then. And the record of our growth is indicated not so much by acres upon acres of floor space nor vast sales totals as it is by the type of accounts we serve (many of them of national reputation); by the experience; understanding; financial resourcefulness . . . by the enviable position of leadership we now enjoy in the corrugated world. It is a definitely established fact that many of the vitally constructive developments in the corrugated business are closely linked with GRAND-CITY.

Today GRAND-CITY is not only a large and important organization . . . it is an instrument of service to users of CORRUGATED SHIPPING CASES, CORRUGATED DISPLAYS, CORRUGATED SPECIALTIES.

GRAND-CITY CONTAINER CORP.

622 West 57th Street New York City

FACTORIES IN NEW YORK CITY, BROOKLYN, N. Y., AND ALBANY

also aid moistening by presenting a larger surface to the water, thus softening quicker and more thoroughly. The grooves also permit the escape of air which otherwise might be trapped in blisters when the tape is being rubbed down.

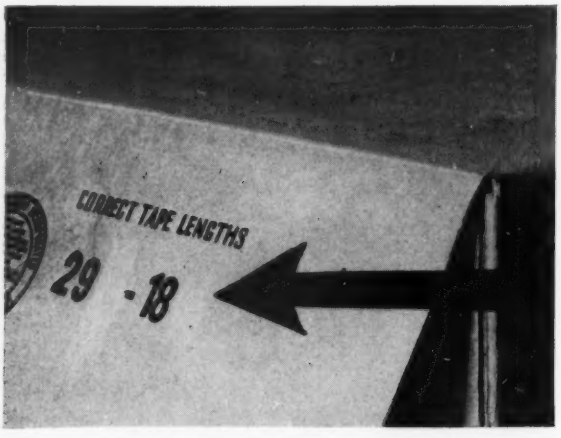
Other glues are "cracked" to increase water absorption and flexibility. After tape has been glued by the manufacturer, it is dried on steam heated drier rolls. This bakes the glue to a hard, smooth, glassy surface which tends to shrink one side of the paper, resulting in curled edges and stiff tape. Some manufacturers therefore process the tape at this point by breaking the glue surface into millions of fine, hairline cracks. These make the tape soft and pliable, reduce curl and speed up moistening and application.

Because of the presence of this glue, reasonable care should be taken in the storage of gummed tape. Supplies should be kept in the original package in a cool, dry room, away from steam pipes and radiators. When first brought indoors in the wintertime, it should be allowed to season a few days before use, as cold glue dissolves at a slower rate. Warm weather, or water with a little vinegar added will speed up the moistening.

Moistening

In the early days, moistening meant just that—wetting the glue with the easiest method at hand. Some drew the tape over a wet sponge. This not only resulted in insufficient water, but also tended to transfer the glue to the sponge which, in a short time, became caked and worthless. Others dipped the tape into a pan of water, which provided too much water and greatly delayed the setting time. Another way was to lay the tape upside down and pass a wet cloth or sponge over the glue with a slow, mussy operation as a result.

To fill these needs, mechanical moisteners were developed and these have rapidly progressed from the crude earlier designs to the efficient, practical models now available. These various styles can be divided into three general classes—the felt pad, the roller type and the brush moistener.



5. Proper tape lengths indicated on a shipping container.

The felt pad type is least efficient, as it delivers too little water not well enough distributed and also has a tendency to rub some of the glue off the tape.

The roller type is better, as it delivers more water and is extremely simple to operate and maintain, besides being very inexpensive. It has the disadvantage of often applying the water in irregular areas and this is aggravated by variations in speed of withdrawing.

The brush type is the latest design of moistener and its development grew out of a need for a method of applying adequate water without skipping some areas and without wiping the glue off the tape. The brush is upside down and the only attention necessary is to see that there is always a full level of water in the fountain and to replace the brush before it wears too thin. The latest improved designs have two brushes in tandem which increases efficiency, especially at high speeds.

Modern moisteners come in a great many designs, both automatic and "hand-pull." Some can be adjusted to deliver predetermined lengths of tape, cut accurately and moistened. Others include a simple scale enabling the operator to withdraw the correct length each time, even though each consecutive piece is desired of a different length. Some models will slit the tape into two widths in the delivery action. Often one pull of the handle moistens the tape, cuts it off and delivers it—the cutting being effected by the return stroke of the handle. In spite of this complicated action, modern design has resulted in very compact, attractive models which can be re-loaded in two seconds and which have a self-sharpening cut-off knife.

In selecting a moistener from all these models, the following suggestions may be helpful:

(a) Small automatic—measures and cuts a specified length strip in one operation. Adaptable for small package sealing using 35-lb., 500-ft. rolls from $^3/_4$ in. to $1^1/_2$ in. wide with glue outside.

(b) Small hand-pull type—for 35-lb., 800-ft. rolls (glue inside). Tape width $^3/_4$ in. to $1^1/_2$ in. For general package sealing.

(c) Large semi-automatic—for carton sealing and medium sized shipping departments. Ejects a measured strip which is cut off with hand operated knife. Uses 60-lb., 600-ft. rolls from 2 in. to 4 in. in width.

(d) Large automatic. Ejects and cuts measured strips in one operation. Uses 60-lb., 600-ft. rolls 2 in. to 4 in. wide.

(e) Large hand-pull type—a serviceable machine for intermittent use, especially on large packages.

(f) There are also available complicated and expensive machines for special purposes. One of these automatically attaches gummed tape to a packed slotted carton. Another holds, under pressure, the two halves of a full telescope container while a 4-in. wide piece of gummed tape is wrapped all around the four sides of the joint.

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A sample in the hand is worth three in the factory—and Western Union KNOWS HOW to get it in the dealer's hand—in the consumer's hand—in the hand of the professional man. Overnight, if desired.

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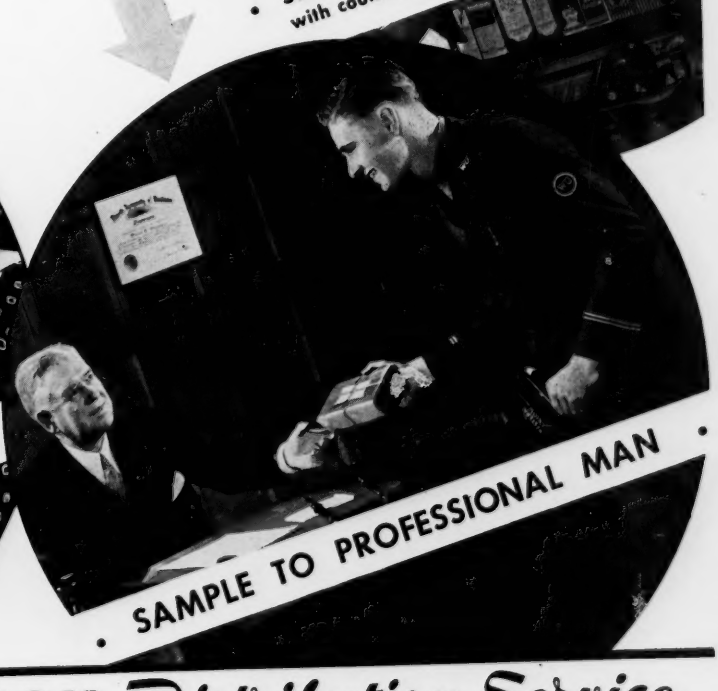
Call the Western Union manager for the cost of this service locally, by states, or simultaneously over the nation.



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with counter display and special message.



• SAMPLE TO CONSUMER •



• SAMPLE TO PROFESSIONAL MAN •

WESTERN UNION *Distribution Service*

Avoiding Tape Waste

Many shipping departments look on sealing tape as a minor item which costs little or nothing and which can, therefore, be used without regard to expense. Others seem to feel that the more tape used, the safer the outgoing package. A brief consideration of the function of sealing tape should show that the only place where tape is working for you on a fibreboard box is at the seams or joints. Two and a half or three inches overlap down the side simply anchors the tape which is reinforcing the seam above.

If this overlap is properly adhered, another foot of tape won't make this seam any stronger. The top or bottom seam, where the outer flaps meet, should be sealed with a strip lengthwise over this seam. Criss-crossing 2-in. tape over this seam is wasteful as only the 2-in. width *at* the seam is doing any good.

One shipper sealing only 209 cases a day saved $435 a year by cutting the overlap back to three inches. He was easily justified in installing a fixed length moistener. Of course, if tape is being applied with blisters and loose spots, you may need this extra tape to compensate and hold the tape in place.

Another disadvantage of extra long overlaps is that they hide the printing on the box and, moreover, gummed tape does not stick well on printer's ink. In designing printing copy, why not allow three inches for the tape, if you seal with tape? This not only leaves the copy visible but serves to remind the operator to watch his cut-off length.

When sealing the flaps of a slotted carton it is better to first fold the outer flaps partly inward. This takes out the spring which otherwise might cause the wet tape to slip. Hold the flaps in place while the tape is setting by placing a weight on them, or even by pressing with the hands while rubbing out any trapped air. Printed tape is economical advertising and also discourages pilfering. Colored tape to match the box improves the looks of the package.

In sealing corrugated containers made of dry finish kraft, special attention must be given to the glue and moistening. This is because the rough, porous surface of this board has a very different action on the wet gummed tape than is the case with a smooth, dense surface. Most of the leading manufacturers of tape and moistening machines have made a study of these differences and are prepared to recommend the best methods of taping both rough and smooth finish boxes.

COLOR IN SHIPPING CONTAINERS

The corrugated or solid fibre shipping container originally bore no printing or decoration. To its kraft-colored walls, shippers later added black stenciled identifications. Still later these were printed with crude designs or buckeye lettering, in black or other dark inks.

Today several processes are available whereby container manufacturers can provide colored shipping cartons. Among the practical possibilities are the application of solid color of vivid hue all over the carton board. Allover pattern designs can likewise be applied to the sheet, including trade marks, firm names or purely decorative repeating designs. Designs can be made to appear as if a second operation had laid them over a solid background of color, or to appear wholly without the solid background. The device or design can also be subdued as if it were a water-mark on paper.

Other methods of color application involve the printing or coloring of container board, in sheet form, as a part of the die-cutting and fabricating processes. Here, of course, more individualized and non-repetitive types of design can be utilized. While registry and detail do not, of course, approach the accuracy of small package printing, the technique has been advanced to fully meet most present requirements for shipping containers.

Development of these processes for the application of printing or coloring to corrugated board has greatly increased the use of such board, not only in shipping containers but for floor stands and displays and for combination container-display stands. The possibility of using color on shipping containers has resulted in the placement of far greater emphasis on the display and advertising value of such cases. While a colored or decorated case obviously costs more than one showing only plain board surfaces, a number of packagers have found it advantageous to utilize color for its advertising value when seen in shipment, for its value in encouraging the dealer to utilize cases in the store as display stands and merchandise "props" and for its value in the hands of the consumer, to whom such cases frequently go.

The use of color and decoration on shipping containers has permitted manufacturers of families of packages, or producers of products which are not displayed in sales packages, to develop family groups of shipping containers which tie in with each other and with other decorative symbols of the company's identity. An outstanding instance of this sort is found in the packages of the Anaconda Wire & Cable Co., many of whose products are shipped in corrugated cases. Here case decoration effects a tie-in not only with cartons, cans, labels and other package paraphernalia, but with truck and plant decoration, advertising color schemes, company letterheads, etc.

The net result has been to build up the color scheme and design of the corrugated container as an invaluable identifying trade mark for all products of the organization and for the company itself.

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SECTION THIRTEEN

RIGID TRANSPARENT CONTAINERS AND DISPLAYS

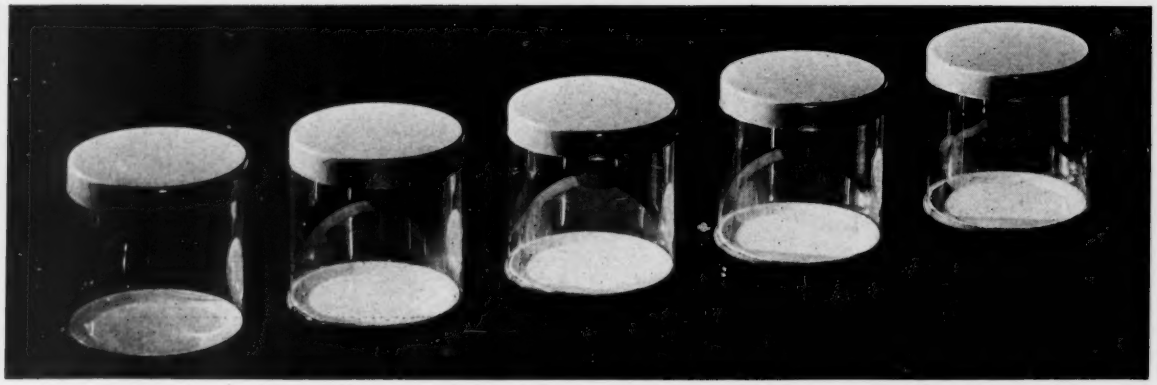
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RIGID TRANSPARENT BOXES

CELLULOSE DERIVATIVE TUBES AND VIALS

RIGID TRANSPARENT DISPLAYS

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4. Stock cylindrical boxes with metal bottoms and metal slip covers. Photo courtesy Celluloid Corp.

weight. Rigid transparent boxes are often specified because they permit better window display, prevent the handling of merchandise, or permit easier identification on shelves of the store or in household closets.

In the large sizes rigid transparent containers are more expensive than the equivalent sizes of non-transparent types. This price differential sets limitations upon the use of transparent containers which are not easily overcome, for the raw material which goes into the making of these boxes is naturally more expensive than those usually used for opaque containers. Nonetheless, as the volume of the industry's production has increased, marked reductions in cost have been effected through the use of semi-automatic and automatic machinery in the making of these containers and through the development of constructions which have permitted the use of lighter weights of material while achieving sufficient rigidity to stand up through the hazards of shipment and display. Sales of rigid transparent material in 1938 equalled as much in a single month as in the entire year of 1936.

Until recently, the tendency has been to treat these containers as a type unrelated to anything that had come before. Within the last year, however, much attention has been paid to the development of combinations of rigid transparent materials with other materials to form packages having some of the advantages of each type. Thus, added display values of transparency are gained while color and low cost are achieved with the use of boxboard and paper.

Within the last year, a pronounced trend has also been noted towards the development of transparent displays in which packaged products are held in position in a transparent container. Other types of transparent displays have been made, combining transparent materials with wood, metal, etc., in which cases the motive behind the adaptation of this form of design has been identical to that described in the case of combination packages.

That the transparent package and display offer definite merchandising possibilities has been amply demonstrated in the department-store field during the last two years, and by a large number of manufacturers who have successfully used these packages in the promotion



5. Transparent boxes used in combination with ribbon ties for stationery packaging. Photo courtesy Monsanto Chemical Co.



6. Transparent Cel-O-Seal band used to link a compact with a re-fill jar. Photo courtesy Armstrong Cork Co.

FOR GREATER APPEAL AND FASTER SALES



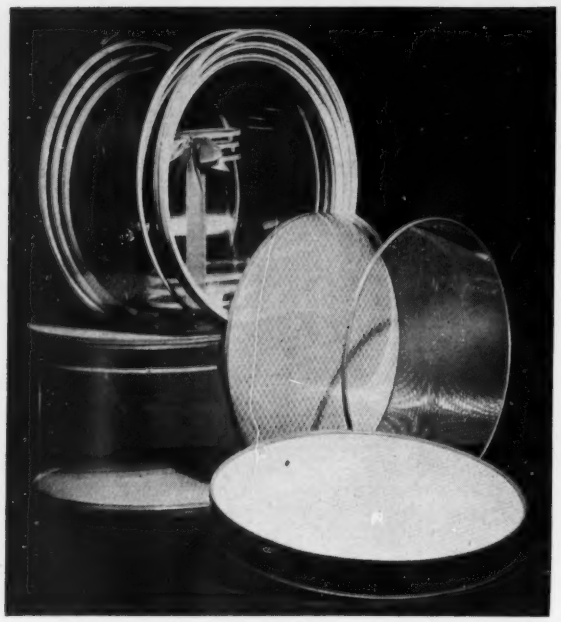
EASTMAN ACETATE SHEET daily finds new applications for distinctive packaging. The reason—containers made from it display products in their natural color and texture.

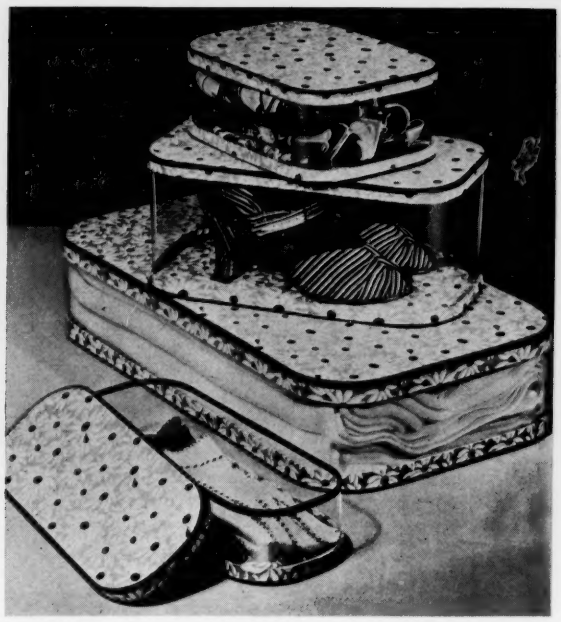
EASTMAN ACETATE SHEET combines the merits of ordinary packaging materials with transparency. It is crystal-clear, tough, and durable . . . takes printing without wrinkling . . . can be molded, drawn, or folded. Complete packages can be fabricated from it . . . or it can be readily combined with cardboard, wood, plastics, or metal. It is the ideal material for modern packages that protect as they beautify.

EASTMAN ACETATE SHEET is available in rolls up to 40″ wide—any convenient length; also standard or cut-to-size sheets. Thicknesses—.003″, .005″, .0075″, .010″, .015″. Samples and further information supplied promptly upon request to . . . Eastman Kodak Company, *Chemical Sales Division*, Rochester, N. Y.

EASTMAN ACETATE SHEET

APPEALS . . . DISPLAYS . . . SELLS

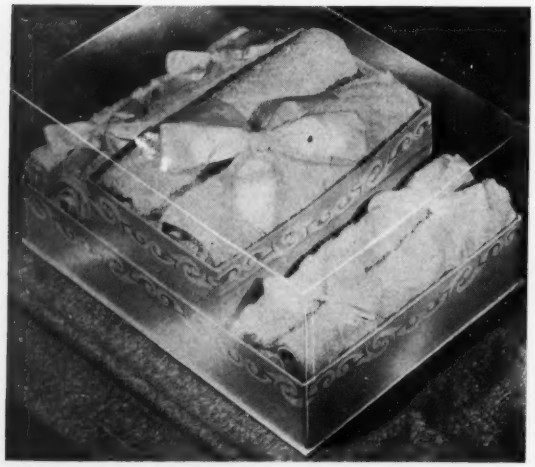




7–8. Transparent walled utility containers for clothing items with fancy paper decorated tops and bottoms. Fabricated by Kerk Guild, Inc. Photos courtesy Eastman Kodak Co.

of branded goods. Even when we discount the influence of novelty, we must recognize the fact that any package which can be sold on its own merits as a utility container to thousands and thousands of women—as have transparent hat-boxes, shoe-boxes, glove-boxes, etc.—must possess qualities which make it ideal for the sale and display of certain types of products.

A primary consideration, when the use of a transparent package is contemplated, revolves around the question whether the product will benefit by full visibility. If it is a product ready for use, colorful and attractive in appearance, and of a nature that is self-explanatory, the rigid transparent container may well serve to increase display and sales. If, on the other hand, the product is one which must undergo some household processing prior to use, or one which is of a nondescript or unattractive appearance, manufacturers will obviously do well to discard all thought of transparent packaging in favor of the opaque package which permits them to visualize, upon wrap and label, the satisfaction to be gained through the use of the product or its appearance after processing in the home.



9. A transparent hood for a set-up paper display box. Manufactured by See-Thru Container Corp. Photo courtesy Eastman Kodak Co.

Secondary considerations tending to induce the use of rigid transparent cellulose packages are found in the protection they offer the product during demonstration. Consider, for instance, the transparent box used for textiles, where it is desired to demonstrate the texture, color, weave, and design of the article without permitting the prospective customer to handle and, perhaps, soil the merchandise. Again, transparent containers permit easy identification of merchandise in which a wide variety of colors or types are offered as in the case, once again, of textiles. This same quality of making selection easy provides a re-use value for the transparent container which opaque containers do not possess. Women who utilize three or four transparent, or partially transparent, hat-boxes can always instantly tell just where any particular hat may be found, without opening any of the containers unnecessarily.

The rigid transparent cellulose box has, of course, a number of limitations other than its comparatively high cost. To cite a single instance, the manufacturers of hygroscopic products cannot consider these packages because the cellulose-acetate material from which they are made is moisture permeable. Certain types of hard candies will rapidly become sticky if packed in an ordinary rigid transparent cellulose container. Other products, which contain a moisture of their own which

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LUSTEROID rigid cellulose tubes and vials combine beauty of color and luster with many real savings in packing and shipping. For manufacturers and packers of small objects; pills, tablets, powders, certain semi-liquids and liquids; cosmetics:—LUSTEROID is answering tomorrow's packaging problems today.

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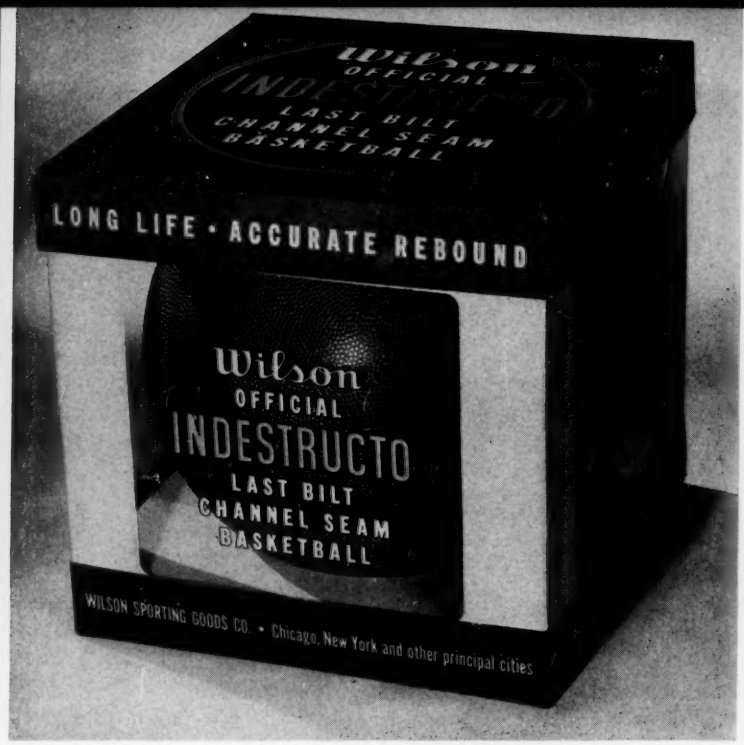
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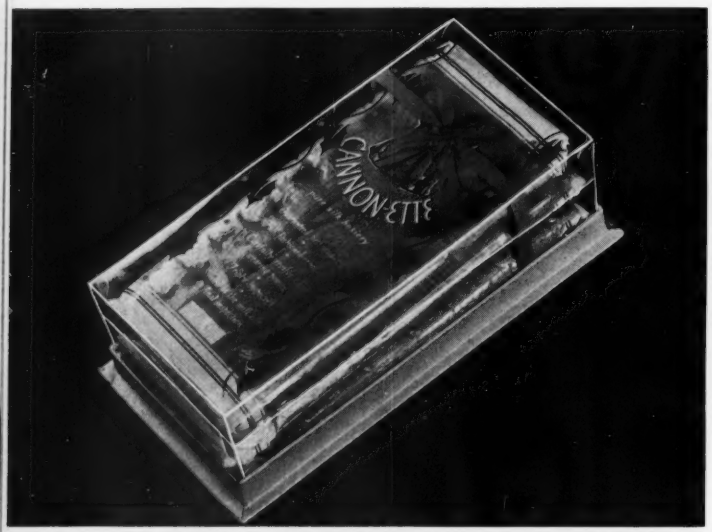




10. Novelty pails and drum type containers with painted decorations. Manufactured by Parfait Powder Puff Co., Inc. Photo courtesy Eastman Kodak Co. **11.** Display carton with printed acetate windows. Photo courtesy Ace Carton Corp.

must be retained to keep it salable, are likewise excluded from the group which may use this type of package.

Another limitation is found in the handling and packing of these containers, which must be handled more carefully than ordinary cardboard containers or tubes because of their tendency to become scratched and chafed. In shipping, care must be taken to see that the packages are placed into shipping containers either with soft tissue paper to separate every package wall from friction or packed sufficiently tight to avoid movement.



12. Printed transparent top on set-up paper box base. Made by Transparent Specialties Manufacturing Co. Photo courtesy of the Celluloid Corp.

The cellulose acetate materials are rated by the Board of Fire Underwriters as slow-burning materials, requiring no additional insurance coverage or limitations. In this respect, they are considered no more hazardous to store or ship than ordinary newsprint or cardboard.

Rigid Transparent Cellulose Boxes

Transparent boxes are manufactured from cellulose acetate material which is supplied to the manufacturer either in sheets or in continuous-length rolls. Continuous-length material ranges in thicknesses from .003 to .020 inch. The sheet material may be had in varied thicknesses which is usually used in gauges ranging from .003 in. upward. Wherever possible, manufacturers prefer to use continuous length material as there is less waste in cutting and trimming.

The materials are made in clear transparent form and also may be had in tinted and colored transparencies and in translucent form. Since cellulose acetate is not affected by extreme changes of temperature or humidity, and since the effect of light can be allowed for in advance, packages made of this material do not tend to deteriorate in transportation, storage, or display.

Cellulose acetate sheets are converted into containers by a process consisting of two parts, forming and seaming. Forming operations are usually simple and consist basically in shaping of the cut sheet around a "jig" or form. Some of the thinner gauges can be bent and formed cold. With the heavier gauges, it is advisable to use heat at the point of bending, thus obtaining a sharper and more permanent bend with less danger of cracking the material. In some cases, it is advisable,

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ES TUT NICHT
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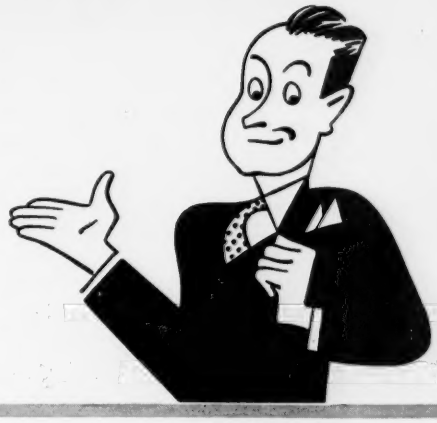
NON SI RESTRINGE,
NON SI RAGGRINZA

NIE SKRUCAJĘ LUB
NIE SKRĘCAJĄ SIĘ

OUTE MAZEUI
OUTE ZAΡΩΝΕΙ



In plain English... It DOES NOT SHRINK or WRINKLE



NO MATTER WHERE you send transparent packages of Lumarith Protectoid, you'll find this universal truth: they do not shrink or wrinkle.

Think what this means to merchandising success! It means stability of sales appeal . . . fewer "returns" . . . greater protection to contents.

Lumarith Protectoid does a grand job in all transparent packaging applications, both rigid and flexible. Always clear, smooth and sparkling. Available in sheets or rolls from the tissue-thinness of .00088" to the rigidity of .010".

For specific details on the use of Lumarith Protectoid for your packaging, get in touch with Celluloid today. We'll be glad to send an experienced package man to call, or to send you a 16-page booklet of technical information on this fascinating material. Packaging Division, CELLULOID CORPORATION, 10 E. 40th Street, New York City. Established 1872. Sole Producer of Celluloid and Lumarith. (Trademarks Reg. U. S. Pat Off.)

- It is not affected by temperature or humidity changes—no wrinkling.
- It does not shrink or discolor or dry out with age.
- It is non-inflammable, germ-proof, water-proof, grease-proof (ideal for foods).
- It cements easily and permanently (actually a weld).
- It has a perfect printing surface.
- It will not tarnish highly polished metal surfaces.
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though not absolutely necessary, to score the sheet prior to forming. A number of semi-automatic and even automatic machines have recently been devised for preforming operations, and it is only a matter of time before this process in transparent-box construction will be as mechanized as processes of paper-box construction.

Seaming can be carried on in a number of ways. The most common is cementing. Special cements are used, which are, in reality, solvents of the cellulose acetate material. Applied to the surfaces which are to be bonded, they soften these surfaces and then evaporate rapidly, producing, in effect, a weld of the two pieces. Other types of cement are available for use in joining cellulose acetate to paper, leather, wood, tin, glass, etc.

Other methods of seaming cellulose acetate include sewing, stitching, and eyeletting. These methods, however, do not provide a sift-proof seam, although they may provide ample sturdiness where the product requires neither air-tightness nor freedom from sifting.

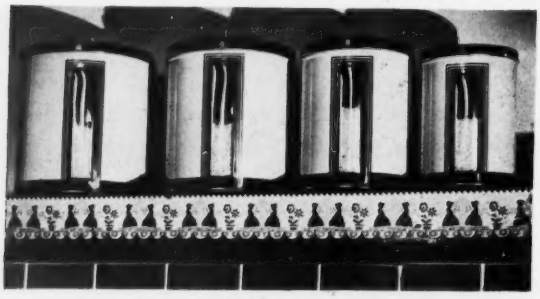
In some cases, seamless containers are made by a process of drawing. Specially designed heated dies are used to draw such items as caps for cylinders and hoods for display packages.

Less expensive transparent boxes, and those of very heavy gauges of material, are made without any special edging. To give rigidity to the box made of lighter weights, a beaded or rolled edge is frequently used. In some cases, a special rim or decorative molded edge is cemented into place to provide both rigidity and eye-appeal. Some companies use constructions involving the use of metal-edging materials on which it is claimed patents are pending.

Transparent containers can be decorated by printing, stamping, embossing, or by combining with other materials. There is no practical limitation upon the decoration that may be applied other than that involved in the excessive use of decoration which tends to detract from the main quality of the container—its transparency.



13. Ribbon- and cord-tied acetate containers. Manufactured by A. L. Siegel Co. Photo courtesy Eastman Kodak Co.

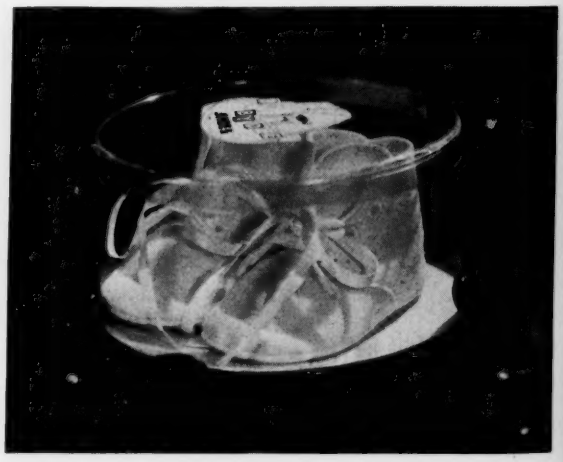


14. "Television" cans equipped with transparent panel windows. Photo courtesy Geo. V. Clark Co., Inc.



15. Ribbon-tied transparent box to house a glass jar. Photo courtesy See-Thru Container Corp.

16. Drum type transparent box with slip cover. Photo courtesy Monsanto Chemical Co.



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A straight look

is the shortest distance to a sale

It's true whether you sell orchids, ornaments or overshoes — people *buy* what they can *see.* Packaged in transparent Vue-Pak, protected but not concealed, a product has its best chance to *help sell itself.*

Each Product In Its Own Showcase

Virtually anything *displayed, sold* or *delivered* in a box, gains buy-appeal in Vue-Pak. On store shelves, it takes the spotlight, but more often the Vue-Pak'd product wins the *feature* position in counter and window displays.

There is a weight of Vue-Pak for every use, producing light, rigid packages. It fabricates easily; is usable for complete transparent packages or combines with other packaging materials. It takes printing readily; can be embossed, cemented or stapled.

For the *customer,* Vue-Pak enhances the value of merchandise and provides a permanent container for re-use. For the *merchant,* it means the opportunity for display without mark-downs due to soiling. For the *manufacturer,* it brings automatic assurance that the customer will not miss *seeing* his product.

Your Samples are Ready

Samples of Monsanto Vue-Pak and names of Vue-Pak package fabricators will be supplied promptly. Address Monsanto Chemical Company, Plastics Division, Springfield, Massachusetts. Monsanto's design service is available without cost or obligation. Plastics Division district offices also are at your service in New York, Chicago, Detroit, St. Louis, Los Angeles and Montreal, Canada.

MONSANTO PLASTICS

PRODUCTS OF MONSANTO CHEMICAL COMPANY



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A straight look

is the shortest distance to a sale

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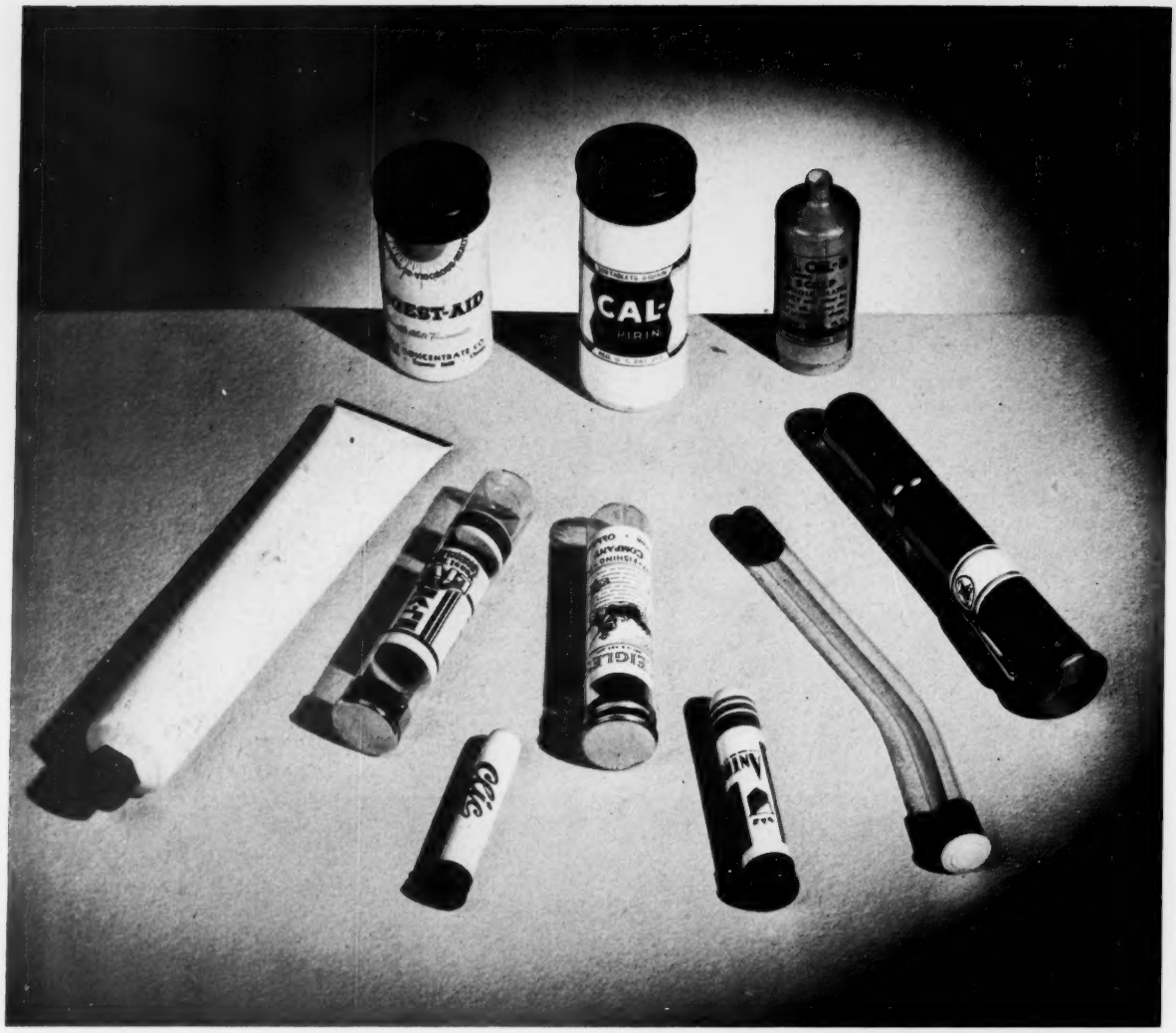
VUE-PAK
TRANSPARENT PACKAGING MATERIAL
TRADE MARK

MONSANTO PLASTICS

PRODUCTS OF MONSANTO CHEMICAL COMPANY



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17. Cellulose derivative containers of various types. Note puffer tube and vials. Note also cellulose derivative closures and metal and molded plastic closures. Photo courtesy Lusteroid Container Co., Inc.

Cellulose Derivative Containers, Tubes and Vials

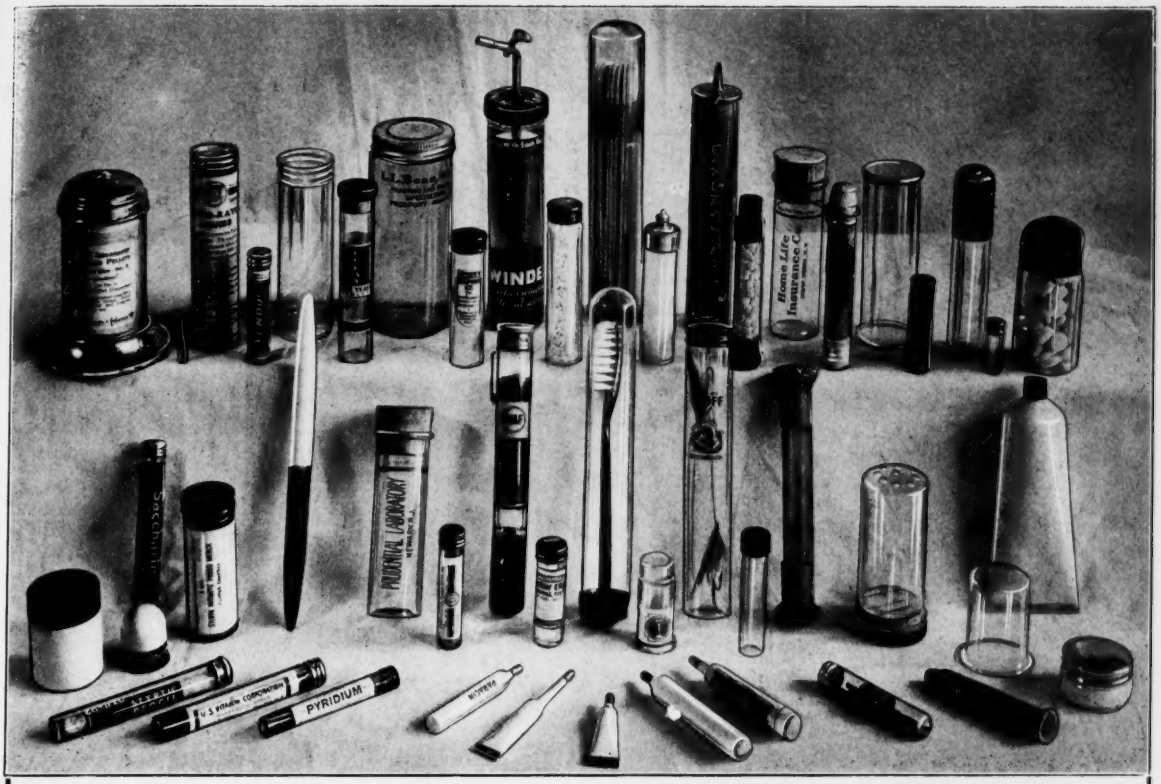
Cellulose derivative containers, like the closely related rigid transparent box, are made from cellulose nitrate and acetate materials. They are made in a practically limitless range of colors and shades; clear, tinted, or opaque. Containers are formed or drawn in special processes which produce a seamless shell in an almost limitless number of variations of the basic cylindrical shape. Thus, short, stubby jars, tall thin vials, tubes similar in shape to the metal collapsible tube, shapes similar to glass ampules, and shapes similar to the familiar gelatin capsule, are thoroughly practical.

Containers of this sort are usually "labeled" when made, the lettering and design being processed directly upon the container material and becoming an integral, permanent, fixed part of the package. Since threads can be molded-in in the forming process, screw-type closures are frequently used in conjunction with these containers, the most common being single-shell metal closures and molded caps. Cap-like closures, made in a manner identical to that of the container itself, are likewise frequently used.

Because of their resiliency, these containers resist damage and breakage. This quality, and the light weight and lack of bulk of cellulose derivative containers, have combined to make them extremely desirable in sampling, in the packaging of medicinal and related products, and in the packaging of mail-order items. In the pharmaceutical field, the inertness and sanitary qualities of the cellulose material, of which these containers are made, serve as an inducement to their adaptation.

Cellulose derivative containers are produced on specification and thus can be made to embody the constructions meeting the special requirements of each manufacturer without entailing additional expense.

Certain types of cellulose derivative containers offer mechanical advantages unobtainable at present through

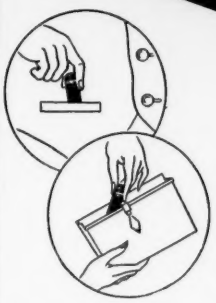


For Products that are *"Going Places"*!

LABELED-WHEN-MADE
MADE IN ALL COLORS
featherweight

As varied in style, eye-appeal or purpose as a packaging expert could wish, Hycoloid has "gone places," protecting innumerable products, and adding a MODERN appearance that enhances the prestige of its contents. It saves *you* money and gives EXTRA satisfaction to consumers.

Unbreakable Hycoloid Containers



Made transparent, or opaque—in any required color—*UNBREAKABLE* Hycoloid is a real factor in good-will building for products that prosper in "pocket-or-purse" markets, as well as for drawer or cabinet use. *They don't break!*

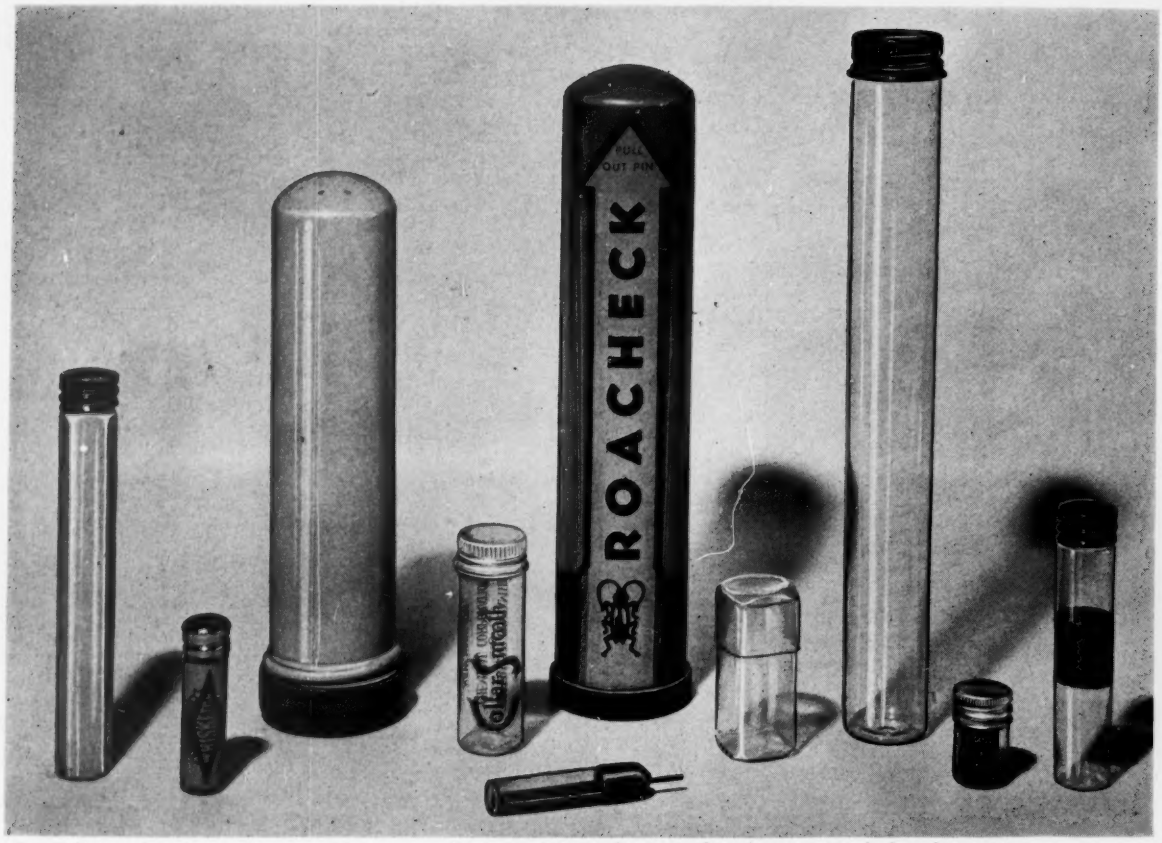
We gladly submit suggestions to those contemplating package improvement. Write to

HYGIENIC TUBE & CONTAINER CO.

"First" in Celluplastic Containers

50 Avenue L, Newark, N. J.

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18. Cellulose derivative containers. Note range of sizes available and variety of applications to which such containers readily lend themselves. Photo courtesy Hygienic Tube & Container Co.

the use of any other material. Among these is the puffer type, in appearance similar to the standard collapsible tube. These are ideal for the packaging of powders which must be sprayed in use, since the resilient tube acts as a bellows when pressed and after ejecting the spray of powder returns to its original shape.

Collapsible tubes, made by the seamless cellulose process, are widely used for the packing of certain ointments which are not compatible with tin or aluminum. The tubes are also excellent for the packaging of oil or grease base creams and lotions.

Rigid Transparent Cellulose Displays

The same qualities which have led to the use of transparent cellulose acetate sheeting in the packaging field have made these materials desirable as displays. In point of fact, a large number of the packages made of cellulose acetate verge very closely on display form. However, an increasing number of manufacturers have been adopting specially-made displays, utilizing cellulose acetate to achieve increased visibility for their products in conjunction with protection against breakage, handling, spilling, soilage, etc.



19. Transparent sheeting is combined with glass and ribbon to form this novelty powder puff display unit. Photo courtesy Parfait Powder Puff Co., Inc.

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SEE-THRU *opened up* the field of Rigid Transparent Packages.

SEE-THRU has since planned and developed scores of innovations and improvements in the structure and use of these containers.

SEE-THRU has developed more designs of stock boxes—has a greater variety of tools and equipment for their fabrication.

SEE-THRU has spared neither effort nor money to build *specialized equipment* for finer, faster, and more economical production of these packages.

SO TODAY, SEE-THRU remains the leader . . . still the *only firm* whose *entire efforts* are devoted to the creation and manufacture of Rigid Transparent Packages and Displays.

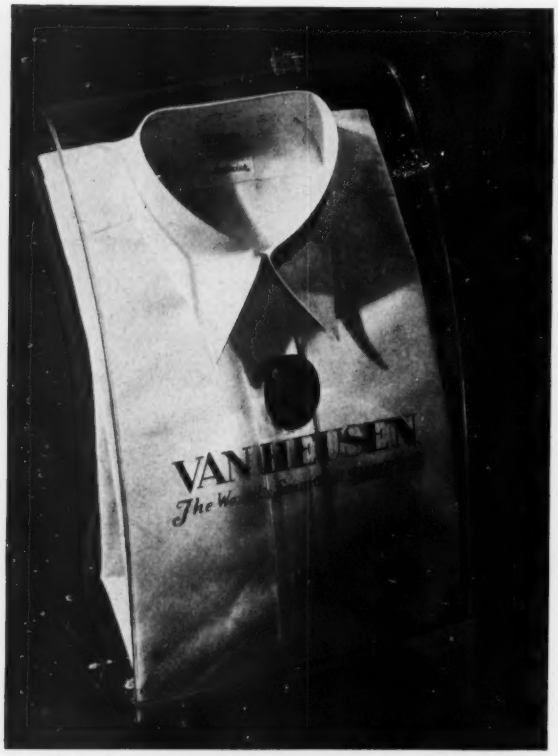
See-Thru Container Corporation

205 East 42nd Street New York City

In their simplest forms, these displays take the shape of troughs or pails into which a quantity of the product may be either neatly arranged or thrown in jumbled fashion for mass display. Stitched and stapled boxes of this sort, usually with a back panel of printed or lithographed board, have been widely used by the makers of chewing-gum, roll-packed candies, and small medicinal items such as aspirin. Others have utilized cylindrical or conical pails with cellulose acetate walls and metal bottoms as so-called "catch pennies" to be placed near cash registers on drug, cigar, and variety store counters.

Manufacturers of more expensive merchandise such as perfumes, watches, electric shavers, etc., have found that a display which encloses their product in a transparent hood serves to enhance its appearance while reducing or eliminating the hazards of open display. Such displays are usually constructed with a board, metal, molded, or cast-plastic base, and a hood of transparent material which may be opened or lifted to provide access to the product within.

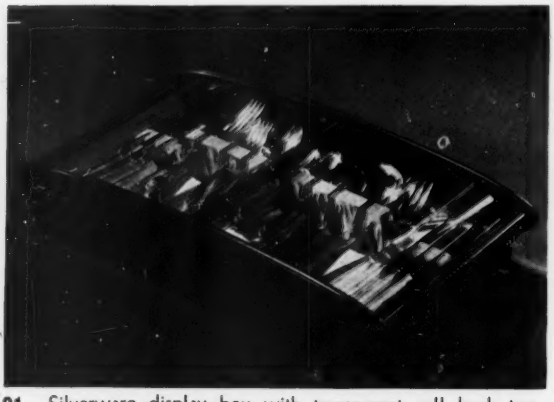
The possibilities for developing effective displays through the use of cellulose acetate have only begun to be explored within the last few months. A fine example of ingenious use of cellulose acetate is found in



20. Shirt display to provide protection and full bosom effect. Note front face decoration. Photo courtesy Jos. H. Meyer Bros.



22. Shaver display of rigid transparent material with die-cut lettering cemented to side walls. Photo courtesy Jos. H. Meyer Bros.



21. Silverware display box with transparent roll back top. Photo courtesy The Pilliod Cabinet Co.



23. Pail type display for impulse purchased products. Photo courtesy See-Thru Container Corp.

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DOUGLAS YOUNG

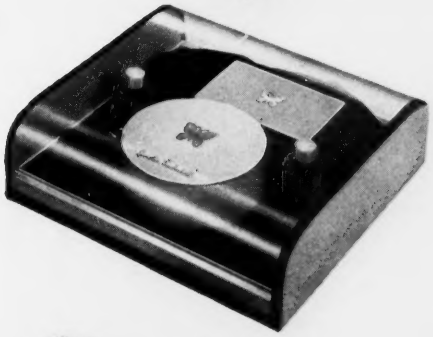
COUNTER DISPLAYS

and

TRANSPARENT BOXES









Our new type of construction makes our Counter Displays and Packages beautiful, rigid and streamlined.

The Economy of using our Counter Displays is being realized by many large manufacturers.

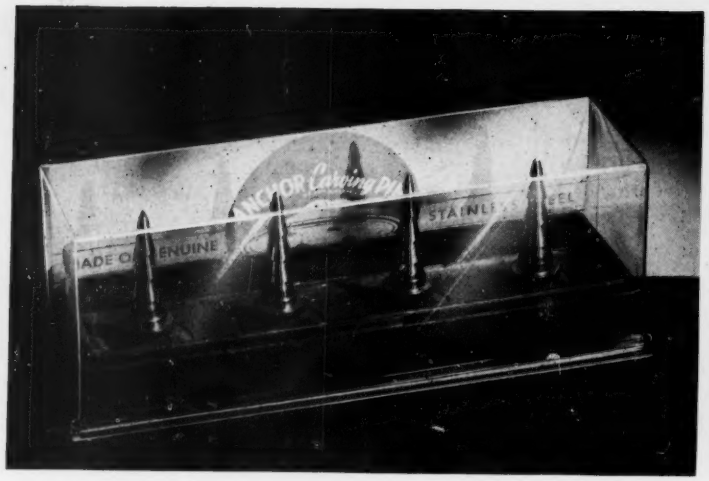
We would like to show you an attractive display or a Transparent Package for your product. A letter from you will bring our Salesman or a sample.

These displays are patented.

DOUGLAS YOUNG, INC.

110 Kenyon Ave., Pawtucket, R. I.

11 West 42nd St., New York City



24. Transparent cover on die-cut set-up paper box base. Photo courtesy See-Thru Container Corp.

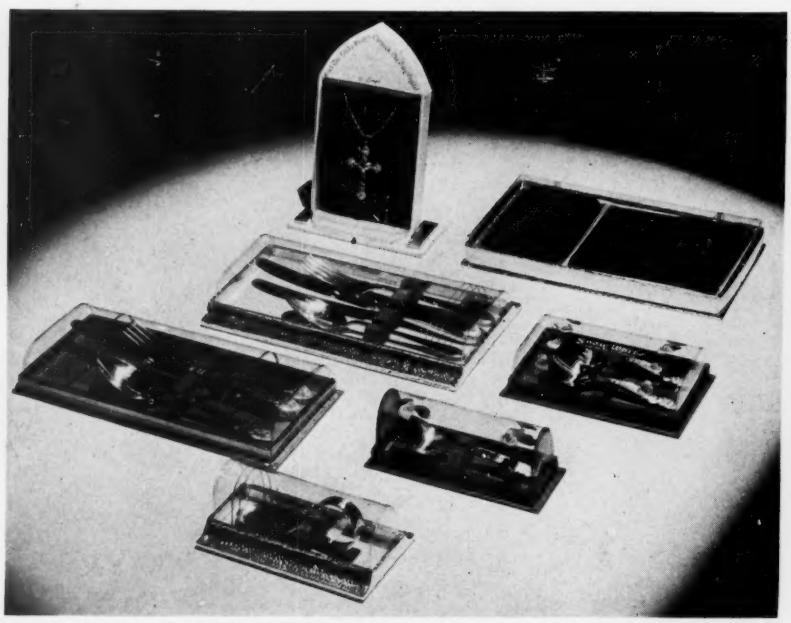


25. A round rigid transparent container with printed top. Photo courtesy General Electric Co.

the display utilized by the Pioneer Suspender Co., in which a cut-out figure of a man wearing a pair of braces is enclosed within a transparent cylinder so arranged as to hold a full size pair of braces in position where its length and quality are easily demonstrated. The cylinder is mounted on a wooden platform which is pivoted and thus permits revolution for demonstration.

The International Silver Co. has likewise demonstrated the possibilities of cellulose acetate as a display material in a series of wooden boxes or chests for silverware, utilizing acetate hoods or covers and thus displaying the product without the necessity of the dealer lifting an opaque hinged lid and exposing the valuable items within to dust, pilferage, etc. Particularly interesting is a roll-top device on one of these cases on which a cellulose acetate sheet is so constructed as to roll back when desired, much in the manner of the old-fashioned roll-top desk.

It is to be expected that more numerous applications of the types described above will be made in the current year, as manufacturers observe the success of the limited number of examples of this type of display that have so far been placed upon the market. Further improvements in construction can also be anticipated.



26. Combination display boxes utilizing a paper base and domed rigid transparent hoods plain printed or gold stamped for decoration. Photo courtesy Celluloid Corp.

27. Transparent material forms the beer glass in this display to simulate a real glass of beer. Photo courtesy Einson-Freeman Co., Inc.



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ROYALTY IN PACKAGING



To the Queen's taste is this lovely I. Miller handbag housed in a de luxe cellulose acetate container by The CLEVELAND CONTAINER Company.

We also design and manufacture fine packages to the taste of His Highness, The Man of the House.

THE CLEVELAND CONTAINER COMPANY

601 WEST 26TH STREET NEW YORK, N. Y.

Plants:—New York, Philadelphia, Wilmington, Detroit, Cleveland, Chicago, Plymouth, Wis.



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